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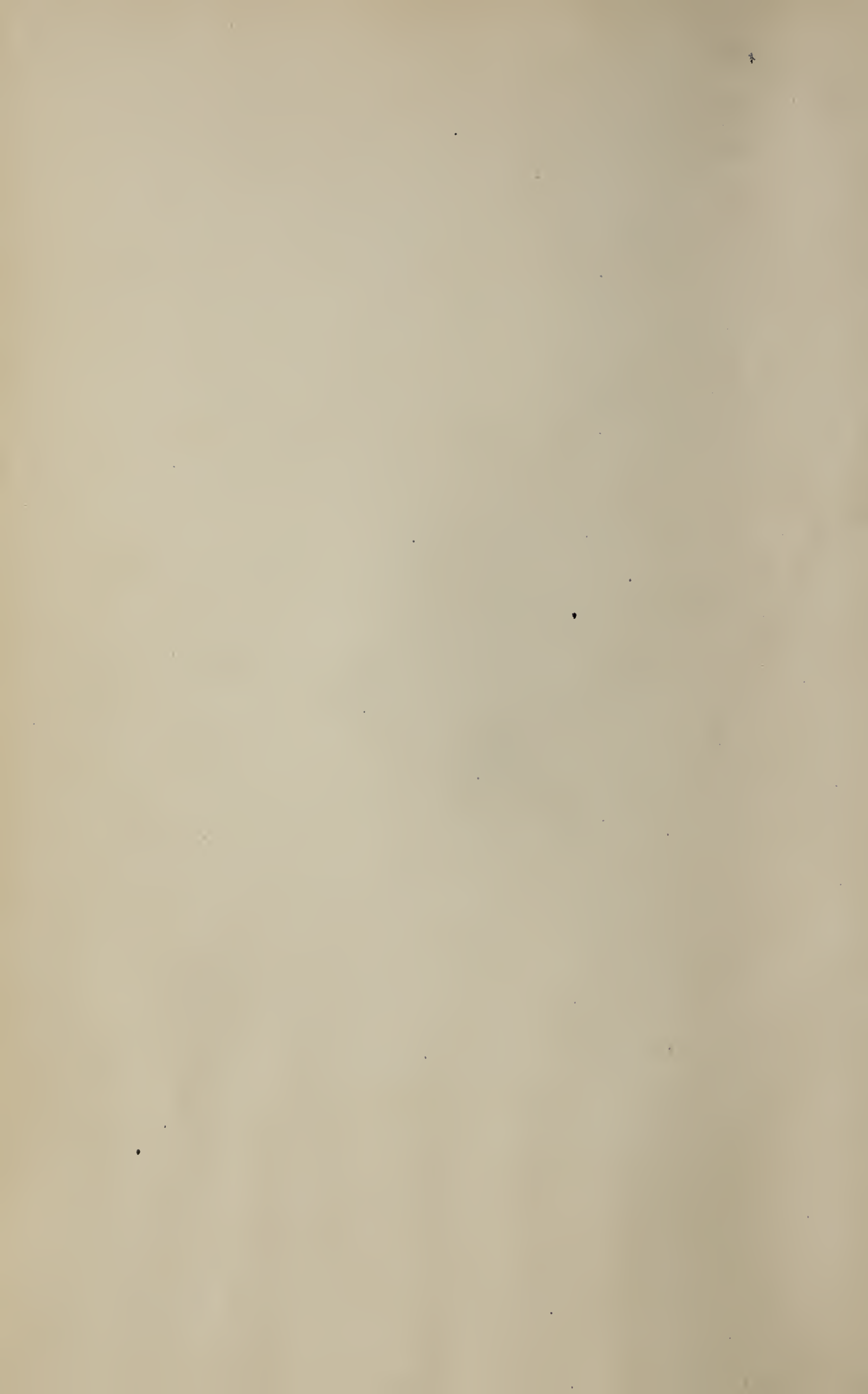
VOLUME.

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VETERINARY MEDICINE

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AMERICAN VETERINARY REVIEW,

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VOLUME XXII.

NEW YORK:

PUBLISHED BY THE EDITORS,

141 WEST 54th STREET.

PRINTED BY
CLARK & ZUGALLA,
33 TO 43 GOLD STREET,
NEW YORK.

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cop. 2

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AMERICAN VETERINARY REVIEW.

APRIL, 1898.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

RETROSPECTIVE AND PROSPECTIVE.

With the present number the REVIEW begins Volume XXII, and at no time in its long history has a similar event transpired when we felt as hopeful of the future of the profession and the paper. The interests of the two are identical. Whatever is the business of the one is the concern of the other. The American veterinary profession is no longer confined to a section of the country; it is everywhere; it is national. At every point of the American compass stand men of ability and with the warmest enthusiasm for the fame and fortune of the comparatively new science in this country. Comparative statistics of its progress here show that it is without a rival in any of the permanent sciences of the epoch. Its most enthusiastic members can scarcely ask that it shall progress faster than to excel all previous experiences of the world. Just as rapidly as circumstances have warranted it State protective laws have been passed, crushing out empiricism and charlatanism, and leaving the qualified members of the profession as the only representatives of the art. Associations of veterinarians have been formed in every municipality, county and State where there are sufficient numbers to do so. The nation has never witnessed so large and excellent an association as is comprehended in the U. S. V. M. A., with its membership including the leading veterinarians in every State and territory in the Republic, and year by year becoming so broadened in its views.

and usefulness that no one section can control its policies and no coterie of men its influence. These associations are formed for the mutual improvement of their members and the advancement of the science with which they are associated, and by their powerful influence they have gradually enslaved public respect and sympathy. Every sign points to a period of professional prosperity, not only in profitable employment for its members, but in the permanent establishment of the profession in this country, not simply in its diversified relations to the general public as physicians to dumb creatures, but as guardians of the health of our citizens and the wealth of the nation as sanitarians. We believe that the appreciation of the importance and merits of the profession is in direct ratio to its own worthiness, and we believe that its own advancement is as rapid as is consistent with its solid implantation as an advanced science. Its true advocates do not seek that meteoric bound which partakes of the character of a "boom," and lacks that fundamental and profound principle of permanent and universal progress—that steady and gradual ascension which accompanies all enduring institutions.

That the REVIEW has felt it its duty to call a halt in the mushroom legislation in the Empire State is based upon this very principle of a healthy though gradual growth. No one with sound reasoning will judge it possible to lift the standard of preparatory education from the merest rudiments to the equivalent of a four-year high school course at one time. We do not wish to be understood as meaning that such a consummation is not devoutly to be wished, but we believe the surest method of reaching that goal is to do so carefully, gradually, but certainly, with just consideration for the welfare of the profession and its collateral interests. We have not achieved sufficient years nor attainments to place ourselves in the same position with some other sciences which have struggled along for hundreds of years, and those who seek to do so place us in a false light. We will get there in very much less time than it has taken them, but to jump from the lowest round of the ladder

to the top, omitting the intermediate steps, will make our poise on the pinnacle very unsteady. We are going along fast enough, and to exceed natural growth is to repeat the experience of the glacier climber.

While advising that amount of caution consistent with thoroughness and permanency, we urge our brethren everywhere to push forward, to be insistent upon the recognition of veterinary medicine as a high and noble science, her true members as true scientists, and her future the most glorious.

With this salutation on the occasion of the beginning of the new volume, we promise that it shall be greater than any that has preceded it—great in the sense of the good it can do to the profession and to humanity.

EUROPEAN CHRONICLES.

BROWN-SEQUARD TREATMENT.—The readers of the REVIEW are well acquainted with the treatment inaugurated after the experiments reported by Brown-Sequard, made with the extract which he had obtained from the testicles of animals, and from which, if we are not mistaken, started the therapeutical use of the various products known in our day as spermine, nerve, thyroidine, etc. It is true, however, that the application of the Brown-Sequardian method of treatment has not yet entered very extensively into human medicine; but there are practitioners, and quite a number of them, in the United States who have recourse to them on many occasions, and with some satisfactory results have been obtained.

As far as veterinary medicine goes, with the exception of a few single attempts made now and then, the method of Brown-Sequard has not yet survived the test which, if we are to listen to the series of comparatively numerous experiments made in Europe, it is entitled to. Indeed, this method has given a number of satisfactory results, which deserve attention and would justify experiments at the hands of others.

To mention but a few among the cases with which the treatment has shown its value may be mentioned those of a

French veterinarian, viz.: (1) An animal in a very anæmic condition and in a fearful state of debility, which disabled him entirely, was, after a few injections of the Sequardian fluid, able to resume his work and return to his healthy condition; (2) another, which, on account of an attack of locomotor ataxia, was perfectly useless, was also relieved by several injections (with him the treatment was rather long and tedious); (3) after receiving a large wound of the gluteal region, which would have demanded probably months for healing, an animal was able to resume his work with a complete cicatrization in a few weeks; (4) a horse disabled by rheumatism; (5) others suffering with old chronic articular synovitis; (6) a dog affected with epilepsy. All were more or less benefited by the treatment of the subcutaneous injections "à la Brown-Sequard" of 10 c. c. for large and 2 c. c. for small animals. The general and local effects were in all the cases comparatively of no great importance, and evidently the specific influences of the treatment were those of a gentle tonic and stimulant to the general organism.

It is certain that the valuable results obtained by this veterinarian, and which he has recorded in a paper presented at the Société Centrale de Médecine Veterinaire by Prof. Mousser, are deserving of a certain amount of attention; but there is a very important question which is likely to prevent its free admission in daily practice. This is the price of the preparation. It is a costly experiment, and on that account the treatment will most likely be ignored by the hard working practitioner. Those of our friends who have tried the application of serotherapy in the treatment of tetanus know already pretty well how expensive it is—the dose for one injection of Brown-Sequard liquid costs two or three times as much—and the number of injections required is such that only excessively valuable animals, the property of no less excessively wealthy owners, can be submitted to it.

* * *

EPIZOOTIC ABORTION.—Much has been written on this subject, and in the United States, where the disease occurs more or

less regularly in breeding and dairy districts, many theories have been advanced. But more recently, from what has been published in Europe, it is generally accepted that the disease is of microbial nature. Nocard was one of the first to make this assertion. Recently Professor Bang, of Copenhagen, and his assistant, Mr. Stribolt, have still further confirmed the opinion of the learned French master ; in fact, have been more fortunate than he, as "*they have not only isolated a specific germ with which they have experimentally reproduced the disease, but have demonstrated the presence of a constant and characteristic lesion of the uterus in infected animals.*" From careful post-mortem examinations and from bacteriologic observations they have established that the preparations made of the utero-placental exudates, colored with the blue of Loeffler, contained a large quantity and its pure culture of a very small bacteria, which gave rise to a uterine catarrh—cause of all the mischief.

Bang and Stribolt have carried their researches on several animals, and have always found the same lesions, the same microbe ; even in three cases did they detect it in the small intestines of the aborted foetus, in the blood, in the bulb, in the abomasum. The experiments of vaginal injections have also proved that the microbe is surely the agent of contagion, though the period of incubation is somewhat long, abortion sometimes not taking place before 30, 33 and 35 days, or even longer. Tested with ewes, and a pregnant mare, abortion was also obtained. Infected cows may abort once, twice or three times, or even more, but always the accident takes place later and later, and at last the animals carry their produce to term. It is then a kind of immunity which takes place and gradually the disease disappears.

The treatment recommended by the authors consists principally in prophylactic measures : isolation and disinfection. Separation of the sick animals, burning of the foetus and of the afterbirths, disinfection of the stables, and of the female genital organs. This last will also be done before the cow goes with the bull, and the sheath of this animal will also be washed with an

antiseptic preparation after he has covered a suspected female. Bang hopes to find a prophylactic or even a curative serum ; an expectation which is justified by the natural immunization of animals after repeated abortions. A. L.

THE NEW YORK JURY BILL, exempting the veterinarians of New York and Kings Counties from service upon juries—those of all the other counties of the State having been released by an act passed some four years ago—was awaiting the signature of Governor Black as the REVIEW went to press. Through the untiring efforts of Dr. Arthur O'Shea, chairman of the Committee on Legislation of the Veterinary Medical Association of New York County, and member of a similar committee of the State society, aided by State Senator Timothy P. Sullivan, of New York City, the bill has been piloted through both the Senate and Assembly against unusual obstacles. Exemption bills reach without much difficulty their reference to the committee-room, but to start them from that resting place it is always tedious and uncertain, requiring that tenacity and persistency which characterizes the genial O'Shea. The thanks of metropolitan veterinarians will not be withheld from the Doctor, though they will never know the amount of work it has cost him until they perform a similar task.

A NEW METHOD OF DETERMINING THE PRESENCE OF ORGANIC LIFE.—In the February REVIEW there appeared the sad announcement of the demise of that promising young veterinarian, Dr. Carlisle N. Darke, of Guttenburg, N. J., the information having reached this office from two different sources. With extreme regret his name was placed among the galaxy of those who have closed the books of their earthly accounts, and we erased his address from the subscription books. Nothing seems to have been able to bring forth a protest from the unwitting hero of the incident except the discontinuance of the REVIEW, for he writes that he is as well as usual and demands to know why he has not received his February number.

THE PUBLISHING HOUSE OF W. R. JENKINS is especially energetic in giving the veterinary public new books bearing upon the profession. We have reviewed a number in the past few months, and have before us four others awaiting our careful inspection. The new ones, all of which are excellent specimens of mechanical skill, will be reviewed in the May issue. They are "A Hand Book of Horse-Shoeing," by Jno. A. W. Dollar, M. R. C. V. S.; "Horse-Shoeing," by William Hunting, F. R. C. V. S.; "Veterinary Obstetrics," by Wm. H. Dalrymple, M. R. C. V. S.; and "The Diagnosis of Lameness in the Horse," by W. E. A. Wyman, V. S.

A NUMBER OF REVIEW SUBSCRIBERS have failed to renew their subscriptions to Volume XXII, but we feel certain it is a matter of simple procrastination in remitting the price and not a desire to have their favorite journal discontinued. The work we have been doing is one of love for the profession, and certainly the rank and file have sufficient interest in their calling to appreciate it to the extent of renewing their subscriptions. We notify all such that we cannot carry their names on our books, and if they fail to receive the REVIEW after this issue it is no fault of the publishers.

THE ANNUAL BANQUET of the Alumni Association of the American Veterinary College took place at the Hotel Marlborough, New York City, on the evening of March 31, when the twenty-six new graduates were formally introduced to the profession. Many representatives of former classes were present, loyal toasts were happily responded to, and a very enjoyable reunion participated in. Brother Hoskins as toastmaster was in his best mood.

MEMBERS OF THE U. S. V. M. A., who expect to read papers at the Omaha meeting should notify Secretary Stewart of such intention and their subject as early as possible for the good of the Association and the facility of the work of arrangements.

ORIGINAL ARTICLES.

THE AIR SAC MITE OF THE FOWL.

Cytodites Nudus. Ger. *Cytoleichus Sarcoptoides*. Meg.

BY W. L. WILLIAMS, PROF. OF SURGERY, NEW YORK STATE VETERINARY
COLLEGE.

Although the air sac mite has been studied by numerous European investigators at various dates since Gerlach's first description in 1858, we have found no record of the occurrence of the parasite or a disease referable to it in any English-speaking country, and, indeed, find but a brief mention of either parasite or disease, consisting of a mere outline, by Neumann (*Non-microbic Parasites of Domestic Animals*. Translated by G. Fleming.)

During my official connection with the Montana Agricultural Experiment Station at Bozeman, Mont., from 1893 to 1896, the disease was extremely prevalent, and favorable opportunity was offered for clinical observations, which have been augmented more recently by importing and cultivating the disease at this college.

The malady first attracted my attention by invading some pure bred fowls imported from the Atlantic States to Montana by the Experiment Station for breeding purposes. These were apparently healthy at the time of their arrival, and remained so for three or four weeks. Their permanent quarters not being ready they were placed temporarily in yards where occasional losses of poultry had previously occurred without attracting special attention. By the time the permanent quarters were ready a serious and fatal diarrhœa had broken out among the turkeys, followed in a few days by a similar outbreak among the chickens, and, continuing to spread slowly during the summer, caused a loss of over 30 per cent. of the adult birds and about 50 per cent. of the chicks.

The chief symptoms of the disease were profuse diarrhœa, extreme debility, and either cyanosis or paleness of the comb. The

post-mortem appearances consisted chiefly of a diffuse enteritis, the posterior bowel being chiefly inflamed, and co-existent with this there appeared on the transparent membranous walls of the air sacs about the intestines, numerous minute opaque appearing objects, which, upon examination, proved to be air sac mites.

Inquiry being instituted, it was learned that poultry-raising in Montana was generally unprofitable, owing to frequent heavy losses, largely from a malady simulating in symptoms that which was engaging my attention, so that with numerous natural advantages as to food and climate, the major portion of poultry and eggs consumed in the State was imported from a long distance at high rates, and deteriorated in quality because of the long shipment.

It was further ascertained that the monetary loss in the Gallatin Valley, the most important agricultural area in the State, was quite as great from poultry diseases as from those of any other kind of domestic animals, and as far as could be learned, it seemed that the most serious and persistent malady of poultry was that due to the air sac mite.

The literature obtainable in other languages indicates that various investigators ascribe to this parasite a considerable economic importance, but none of them attribute to its presence the gravity which it attains in Montana and perhaps some neighboring Rocky Mountain States.

The disease was first studied by Gerlach,* who relates that in 1858 his attention was called to a fatal affection in a flock of a few more than twenty Cochin China fowls, among which in a short time twenty died, which upon post-mortem examination revealed extensive muco-enteritis and inflammation of the oviducts, and in the bronchial tubes and their dependencies, the air sacs, he found numerous small mites, either solitary or in clumps. Although Gerlach could not directly connect the enteritis with the presence of the parasites, he could find no other cause for it and concluded that they were in some manner responsible for the fatal lesions.

* Magazin für die gesammte Thierheikunde, 1859, p. 233.

The parasite was described by Zundel* in 1864, one of whose clients had for a time been annoyed by a serious mortality among his fowls, losing two or three daily, and finally asked Z. to determine the cause of death.

The affected birds showed no very marked symptoms of any common ailment, continued to eat, but became very weak, voiceless, their wings drooping and their combs and wattles discolored and pale as a result of anæmia. Post-mortem examination showed moderate emaciation. The intestines were of a rose color, with great engorgement of the mesenteric vessels, while the intestinal mucous membrane was dark red, the intestine much thickened and contained a large quantity of thick, slimy mucous. Large quantities of the parasites were found free upon the walls of the air sacs within the abdomen, and, no other cause presenting itself to explain the fatal lesions, they were ascribed to the mites.

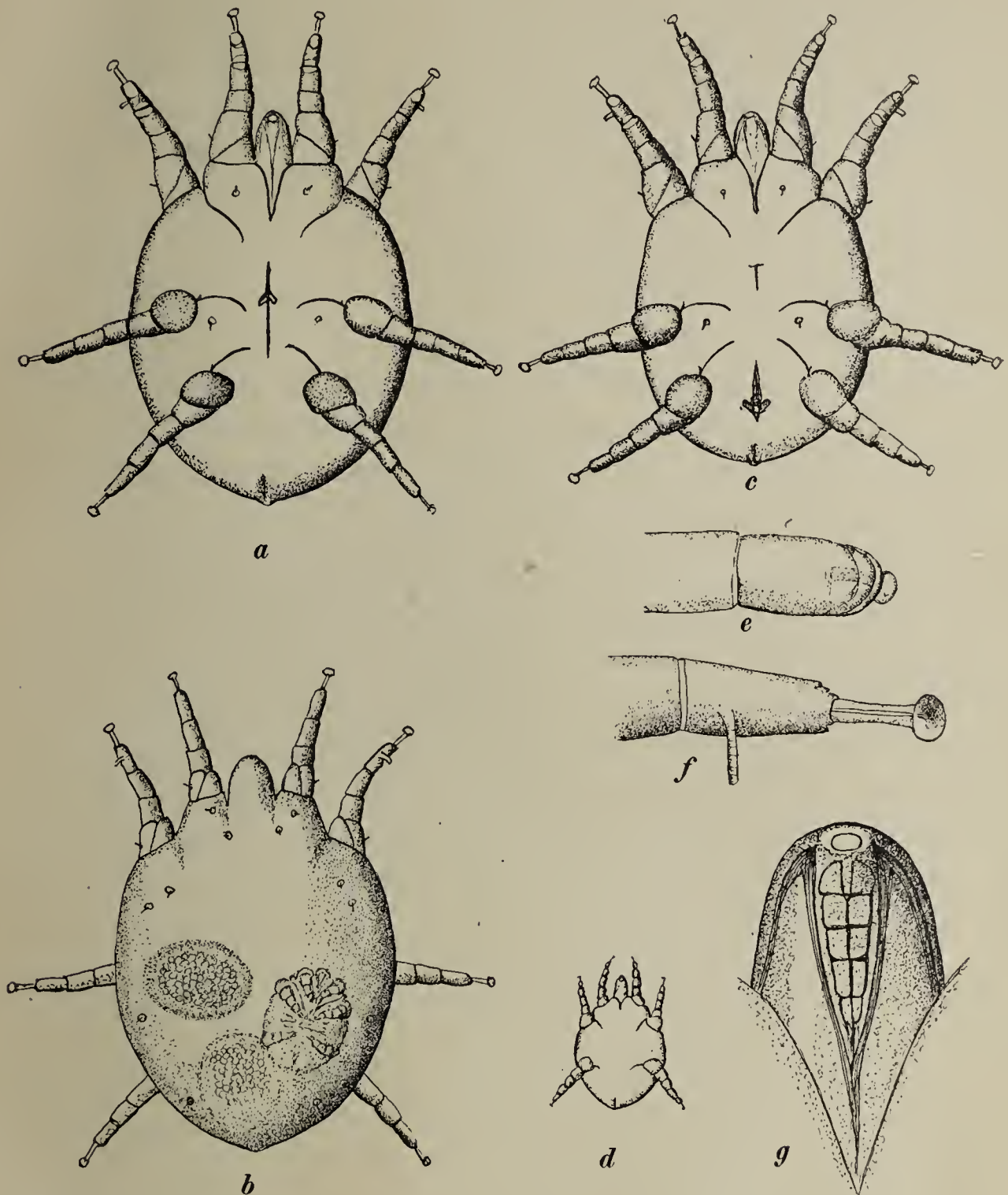
Megnin† in 1879 gave an excellent technical description of the parasite, failing to attach that importance to its presence in the bodies of fowls attributed to it by Gerlach and Zundel.

THE CYTODITES NUDUS OR CYTOLEICHUS SARCOPTOIDES is more closely allied in its anatomical characters to the sarcoptes than to the other classes of acarina. It has for its chief characters a large orbicular body, convex above, the convexity being more abrupt from side to side than antero-posteriorly, giving it a tortoise-like shape; flat below, extended in front by a movable rostrum, which can be largely retracted. It has a translucent body, varying in color and transparency by exposure to light and media in which it is studied. Taken fresh from its normal habitat, and examined under low magnification, the body seems almost wholly colorless, while the body contents appear as masses of pale lemon-colored oil-like droplets. The skeleton is chitinous, smooth and glabrous without visible markings on the dorsal surface except six pairs of small

* Zundel, La Phthriasis Interne. *Jour. de Med. Veterinaire*, Dec., 1864.

† Megnin, Les Acariens parasites du tissu cellulaire et des reservoirs ariens chez l'oiseau. *Jour. de L'Anatomie et de La Physiologie*, 1879, p. 123.

caruncles (Fig. *b*), each bearing on its truncated end a small fine hair, the first pair on a line with the axis of the first pair of legs, equidistant from the margin anteriorly and from either



A.B. Comstock del.

side of the slight obtuse prolongation of the body from which the first pair of legs proceeds. The second pair is more posterior, twice the distance of the first pair from the anterior margin and in a line with the notch between the rostrum and the

protuberance for the first pair of legs. The third pair of bristles is located at about the same distance from the body margin as the second and almost in a line with the axis of the second pair of legs, while the fourth pair is located backwards and outwards from the latter, almost midway between the second and third pairs of legs; the fifth pair almost marginal at a point equidistant between the third and fourth legs, while the sixth pair occurs near the margin, one-third the distance from the fourth leg toward the anus. On the ventral surface (Figs. *a* and *c*) two pairs of hairs are found, one between the epimera of the first two pairs, the other between those of the fourth and fifth pairs of legs.

The rostrum (Fig. *g*) which can be almost wholly retracted within the camerostoma is conical with a rounded extremity pierced in its centre by a circular opening. The mandibles and maxillæ are not distinct, but fused together to form a tube ending anteriorly in the circular opening. Dorsally (Fig. *b*) the rostrum offers no markings, while ventrally (Figs. *a*, *c*, *g*) there is seen a dark line beginning centrally at the base by a sharp point gradually widening for one-third the rostral length, where it divides into two lines diverging at an acute angle to end on either side of the circular opening, at which point it is joined at an acute angle by a second similar line extending along the margin backward to the base. Within the triangular space between the circular opening of the oral tube, and the two first mentioned lines is a double tessellated organ of five articles apparently representing the maxillary palpi and forming the lower lip. No mouth organs capable of biting or penetrating tissues are discernible, the parasite feeding by sucking up the liquid secretions of the membranes which it infests.

The legs are of medium length; large, conical and strong, with five distinct articles terminated by a pedunculated retractile ambulacrum (Figs. *e* and *b*) which is cylindrical, ending in a campanulated sucker; the anterior two pairs almost marginal; the first pair directed almost straight forwards, close alongside the rostrum, bears on the external margin of the trochanter

a short bristle directed outward and forward, while at the tarsus at the base of the ambulacral sucker, there at times appears to be another hair or projection which is probably rather a folding of the chitinous covering of the foot. The second pair of legs (Fig. *b*) shows in addition to these hairs, an elongated retractile spur, pointing upwards and backwards from the tarsus, at right angles with it, about as long, though not as thick, as the ambulacrum. The epimera of the first pair unite on the median line to form a triangular sternite; the apex directed backwards, the base occupied by the rostrum. The epimera of the second pair are free and slightly arched or sinuous. The two posterior pairs of legs are large, glabrous and almost as strong as the two anterior pairs, their epimera free and arched, the convexity being forwards, and each showing near its base a short spur-like projection, extending forwards; the coxæ very large, globular. Anus hypo-marginal.

The ovigerous female (Figs. *a* and *b*) varies in size from .45 to .66 m.m. long, and .38 to .55 m.m. wide. The vulva is between the epimera of the two last pairs of legs, extending forward almost to the epimera of the second pair, and consists of a longitudinal cleft, wider in front than behind, and furnished on either side at its anterior third with a short obtuse prolongation inclined backwards and outward like the barbs of a harpoon.

Within the transparent body there is always observable two to twelve ova in various stages of development, one to six or seven of which contain six-legged larvæ (Figs. *b* and *d*), the legs readily distinguishable folded on the ventral surface of the body. By slight pressure on the cover glass the larvæ can be pressed out of the female and show after their extrusion energetic movements.

The parasite deposits no eggs, but gives birth to living young, is ovo-viviparous, and the extreme variations in size, as noted above, are due to the number of ova contained within the body.

The male is .45 to .50 m.m. long, and .38 m.m. wide, presenting on the middle of the ventral surface a well-marked

sternite with a transverse guard at its anterior end. Penis between the epimera of last hind legs and anus, extending over half this distance, conical in form, and bearing near its base an obtuse semicircular sternite. The young non-gravid female is distinguished from the male by the absence of genitals, copulation being effected through the anus, as in most acarida. The nymph and octopod larvæ differ in appearance from the non-gravid female only in size, no genital system, either male or female, being yet developed.

According to Megnin, the six-footed larva is rarely seen, as it quickly moults. We have failed to find it except in the body of the gravid female.

The *Cytolichus Sarcotoides* has its chief habitat in the air sacs of the gallinaceæ, especially in the common fowl. They have not been found outside the body nor in other parts than the air sacs and their communications: the lungs, bronchi and hollow bones. By reason of their comparatively large size they are readily discovered by the unaided eye, being observed upon the thin pellucid walls of the air sacs as small white particles, like grains of fine meal. At times, they are found somewhat widely scattered; generally they tend to collect in groups. Soon after the death of the fowl and opening of the body, they tend to congregate in clumps within the deeper and darker recesses of the air sacs behind the kidneys, etc. Although they can in some cases be found in the hollow bones which communicate with the air sacs, and in the bronchial tubes, they are not as a rule so readily found in these parts, and but rarely exist there in great numbers. They are readily picked up from the air sac walls on the point of a knife or needle, or easily washed off with a stream of water. They exhibit no power of attaching themselves to the walls of the sacs beyond that required to maintain their body weight. Neither do they possess the power of firmly attaching themselves to each other. Though they congregate in groups in the cadaver of the dead bird or when floating on a liquid, yet they are readily drawn apart, and unlike many acarida they do not appear to become

firmly attached to each other during copulation, so that we have failed to observe the copulatory process.

These observations, in connection with the anatomical characters of the parasite, fully support Megnin in his opinion that prior observers had erred in attributing to the mites serious mechanical irritations, though failing, in our judgment, to warrant him in concluding that they do not cause serious and fatal disease. It is evident that in their usual habitat and with their anatomical structure their sustenance must be derived from the liquids secreted by the membrane upon which they congregate and sucked up by the aid of their tubular mouth parts.

The parasite seems peculiarly erratic in its appearance under the microscope, so that the details given by no two authors consulted fully agree with each other nor with those here given. Gerlach figures and describes an acarus wholly nude, both in body and legs, while Railliet (Neumann's *Parasites of Domestic Animals*, pp. 243-4) figures a nude body, but with the two anterior pairs of legs bearing small, almost transverse, hair-like elevations, in length almost as great as the thickness of the leg. Megnin adds several hair-like projections emanating from little elevations on both the dorsal and ventral sides of the body, figures the same hair-like projections on the two anterior pairs of legs noted by Railliet, and adds to the second pair of legs, at the middle of the last joint, a large spur pointing backwards, two-thirds as long as the ambulacrum and almost as thick, while Zurn, in his "Diseases of Poultry," p. 62, figures the bristles on the body, omits those on the extremity except that in the place of the prominent spur figured by Megnin he figures a tapering bristle almost double the length of that spur. It is not at present possible to fully explain these discrepancies in figures and descriptions. They do agree sufficiently in all essential particulars to make it evident that each had to do with the same parasite.

Although we assume that in passing from one fowl to another the parasite must for a time live outside the body, its discovery in a free state has not been recorded. Left in the body of a dead fowl in a room at a temperature of 70° F., it

lives for four or five days, if protected by the tissues from desiccation. Placed in a normal salt solution, the parasites quickly cluster together in an intricate mass and either remain swimming on top of the solution, or descend to the bottom of the vessel, in either position keeping up almost constant movements of the feet and rostra, without appreciable change in the location of the clump. If one be separated from the cluster it usually rejoins it promptly. In this condition they live and remain apparently quite vigorous in a room at about 70° F. for a period of five to eight days. They appear to be quite indifferent as to whether submerged in water or floating on its surface. Removed from moisture, they quickly dessicate and die.

There is great variation of opinion among the different observers as to their power to cause serious disease.

Gerlach and Zundel were alike positive that they caused serious losses among the poultry of their clients, while Megnin and others are as certain that the former were in error and that it is only possible for them to do great harm when collecting in great masses and blocking up the air passages; a very rare occurrence.

Gerlach thought the enteritis he observed was most likely due to migrations of some immature or larval form boring its way through the tissues, but Megnin very properly states that this cannot be, as the mouth tissues are tubular, that the parasite can only suck up fluids about it and is utterly incompetent to burrow in or through the tissues. When it is remembered also that the entire development of the parasite from ovum to six legged young, can be watched in the body of the female, in which state, if not in its eight-legged form, it is born with mouth parts like the adult, it is evident that we see the entire life cycle of the mite and that at no date in its history is it able to burrow or bite; and since the body and extremities are practically free from any hairs or projections capable of inducing any severe wounds or abrasions, it must be admitted, as Megnin states, that no serious results should follow their presence in so far as mechanical irritation is concerned.

Holzendorff* alone of all authors consulted states that he has found these parasites buried in the liver, kidneys or other tissues, but while he denominates the parasite *Cytolichus Sarcotoides* he neither figures nor describes it and it seems very improbable that he really had to do with the mite in question.

Although I am unable to define the manner, I am nevertheless thoroughly convinced with Gerlach and Zundel that they do produce disease and death. Like Gerlach and Zundel I have made numerous autopsies on fowls in which there could be nothing discovered to account for disease or death except these parasites.

Making a great number of autopsies on any and all affected fowls available for a period of one and one-half years some have been found which were quite free from this parasite but showed lesions which would clearly account for their ill health or death, others revealed more or less numerous mites along with a variety of lesions which could not with our present knowledge be attributed to the presence of the parasites, while in most of the birds examined no cause other than the immense numbers of cytodites could be assigned.

The symptoms of disease observed in those cases where no other evident cause than the presence of these parasites could be detected before or after death, while not wholly uniform, were quite as much so as could be expected when we consider the area over which the mites may be distributed and the variable symptoms possible for their location. Most constant and prominent of all symptoms was the profuse diarrhœa, the fæces being thin, yellowish-white, apparently granular, and very glutinous, adhering to the feathers about the anal opening in large masses. At the same time the bird becomes dull, drooping and feeble, although retaining a fair appetite and in some cases remaining fat until far advanced in the disease. The plumage gradually loses its lustre, becomes dirty, ragged looking, and much dishevelled. If the bird is left to itself it may move about fairly well, but if forced to run it quickly becomes exhausted,

* Archives für wissenschaftliche und praktische Thierheilkunde. B. II. p. 304.

its breathing becomes quick and labored, the mouth being held wide open. The comb and wattles show marked but variable changes, becoming either very dark blue, cyanotic, chiefly in fat fowls, as a mark of asphyxia, or of a pale whitish color in the poorer ones, as a result of extreme anæmia. In all cases these parts are much reduced in size, as they are essentially sexual attributes, and diminish in size with the decadence of sexual powers, which supervenes early in the affection.

In adult birds it usually runs a somewhat chronic course, extending over several days, not infrequently two or three weeks, and in some cases a like number of months. In some cases there may be remissions of the disease, continuing severely for some days or weeks, then abating for a time, to almost surely appear later. It is fatal in nearly every case. Birds two months to one year old are rarely attacked, but well-marked cases have been observed. Sex has an apparently well-marked influence, so that while the disease existed in the Experimental Station yards it was almost impossible to keep breeding cocks, and so far as I can learn these suffer most.

Breed has little influence, the heavy Asiatic varieties apparently suffering somewhat more severely. The disease occurs chiefly during rainy months, either in fall or spring.

The post-mortem appearances vary somewhat, but are characterized chiefly by enteritis and peritonitis.

The enteritis is of a disseminated character, extending throughout the greater extent of the intestines, but affecting most intensely the posterior portions of the bowels, the mucous membrane suffering chiefly, extending to the other intestinal coats if the enteritis is very severe. The mucous membrane is swollen, reddened and gives a general injected appearance to the entire affected bowel. The intestinal contents in the inflamed portions are thin, yellow or yellowish white, and stringy. The mucous membrane is covered over with a considerable amount of slimy mucous.

The peritonitis, when present, is diffuse, the peritoneum of a reddish or dirty gray color, the peritoneal cavity more or less

filled with a dirty brownish serosity, usually turbid. This peritonitis does not appear to be a sequel to the enteritis by extension of the inflammatory process through the intestinal walls, but rather the direct effect of the same factor which induces the enteritis. The liver is usually somewhat enlarged and pale in color. The heart, kidneys, gizzard and anterior portions of digestive canal are normal. The lungs are in some cases inflamed and hepatized; the bronchi, too, are not seldom the seat of some irritation, causing a mucous discharge from the nostrils.

To these we add the actual presence of the parasites in great numbers in the air sacs and their dependencies. They are so large as to be readily recognized by the unaided eye if a proper search be made. They are found chiefly in the air sacs within the abdomen, and are readily seen as small, partly transparent, glistening, white or yellowish white globular bodies like fine grains of meal, adhering either singly or in groups almost countless, to the fine, thin, transparent bladder-like walls of the air reservoirs; more readily still are they seen upon the smooth, dark surface of the liver or kidneys, the dark background making the white parasite conspicuous. The parasite is readily lifted from its position on the point of a knife or pin, and can be examined on a piece of glass or a smooth black surface, where, if watched, its movements may be observed without the aid of a microscope.

CASES.

No. 1. A two-year-old partridge Cochin hen, property of the Experiment Station, became unwell early in March, 1895, was noticed to be somewhat dull, laid no eggs, her comb became a dark bluish purple, as though the bird was partly asphyxiated, the anal feathers were matted together with yellowish, glutinous, stringy, diarrhœic fæces. If made to move, she at once began to breathe rapidly and heavily, the mouth being held wide open to facilitate respiration.

The hen was destroyed April 5th by bleeding and an autopsy made at once. The body was found *very* fat. All inter-

nal organs were found healthy so far as could be determined by a careful serial inspection except the lower portion of the bowel, which was inflamed and contained a thin, yellowish, flaky fluid. The air sacs and their dependencies were thickly infested with cytodites.

No. 2. A partridge Cochin hen, same age and lot as No. 1, with identical history as to date and symptoms. Weight at time of killing 9 pounds. Killed by bleeding. All internal organs found healthy except muco-enteritis of the lower intestine. Cytodites were in countless numbers in the various air sacs. Like No. 1, No. 2 was excessively fat when destroyed, but did not lay before being killed nor did the condition of the ovary indicate early laying.

Case No. 5. Brown Leghorn cock, aged two years, imported from Massachusetts, March, 1894. During the breeding season of 1894 he was mated with six hens, during 1895 with ten. He was well cared for, had ample food, both in quantity and variety, with abundant range, and free access to clean running spring water, and had been apparently in perfect health at all times until July, 1895, when it was noted that his comb had an abnormal hue, being somewhat purplish or bluish, his plumage losing at the same time to a degree its usual lustre, yet he appeared lively and associated with the hens as usual. The hens were laying well, but the eggs, which showed an average fertility during the spring, began to decline in fertility and early in July became almost sterile, indicating a loss of sexual powers. From this time the symptoms of disease increased steadily, the comb and wattles gradually becoming a pale blue, then a pale bluish white, and gradually decreasing in size to one-tenth their normal proportions. The plumage gradually lost its lustre, became ragged, dishevelled to an extreme degree. General weakness, with emaciation, became apparent and the bird ceased to accompany his mates, but remained apart from them, listless, inattentive to surroundings.

During the entire course of the disease there were observed no signs of diarrhoea. On October 8, 1895, the disease had pro-

gressed so far that the bird was scarcely able to walk, the plumage was devoid of lustre, the bird wasted to a mere skeleton, the comb and wattles pale, bloodless, shrunken, respiration quickened, difficult and accompanied by a rattling noise.

The bird was killed by bleeding. The autopsy revealed an exceedingly emaciated, anæmic body; the body cavity contained a quantity of a thickish dirty gray pap-like fluid. The mesentery showed numerous dark, almost black spots one-eighth to one-fourth inches diameter. Everywhere in the air sacs were found many cytodites; the surface of the liver, kidneys and pelvis were thickly dotted over with the parasites. The right lung was inflamed throughout and the greater portion of its tissue firmly hepatized. The bronchi were highly inflamed and filled with a tough white mucous in which living cytodites swarmed, penetrating into the smallest bronchioles traceable with the naked eye. The parasites were also found in the scapulo-humeral extension of the air sac. Testicles were greatly atrophied, being as small as an ordinary peanut.

Case No. 6. Cytodites Nudus, associated with the lesions apparently not due to their presence. Subject property of W. E., a small grade Plymouth Rock hen, one or two years old, had been ailing for some weeks, was emaciated, dull, weak, and on the morning of October 22d was found unconscious and apparently dying. One eye contained a chaff surrounded by a diphtheric membrane. After bleeding, an autopsy revealed great numbers of cytodites in the air sacs. The liver enormously enlarged, weighing 93 grammes, mottled chocolate and dirty yellow in color, and contracting numerous adhesions to the contiguous organs. A small blood clot was present and attached to the surface of the supero-internal face of the left lobe of liver and a similar clot near the entrance of the vena porta, indicating recent hepatic hæmorrhages. Spleen enlarged, oblong, weighing 60 grammes, red and yellow mottled.

From this hen were taken living parasites, which were used in experimental transmission in cases 7 and 8.

Case No. 7. Attempted transplantation of cytodites from in-

fested to supposedly healthy chick, by means of introduction of the living parasites into the air sacs.

Subject, an apparently healthy incubator chick which had not been in contact with other than incubator chicks and on premises supposed to be free from cytodites.

On Oct. 23, 1895, twelve living parasites from Case 6 were introduced into the air sacs of the experiment bird by means of intercostal incision as for caponizing. The subject was then kept apart from other birds except No. 8, and in quarters supposedly free from parasites. No symptoms of disease developed and after an interval of forty-seven days (December 9th) the chick was killed by bleeding and the autopsy revealed a few cytodites in varying stages of development, including young mites and pregnant females. No trace of pathological lesions was discovered.

Case No. 8. Experimental transmission of cytodites to healthy chick by laryngeal injection. Incubator chick with history of No. 7. About twelve living mites from No. 6, suspended in water, were injected through larynx into trachea, and chick cared for as No. 7, without the occurrence of signs of ill health other than those attributed to close confinement.

Autopsy November 6, 1896. No cytodites could be found, and no pathological lesions distinguishable.

Case No. 9. A one-year-old partridge Cochin hen, property of Experimental Station. Noted unwell about December 15, 1895, being very weak, dull, rapid emaciation, quickened and difficult breathing, and feathers much soiled, well marked diarrhœa present, the fæces thin, pale yellowish, stringy. Killed by bleeding, December 26, 1895. Autopsy: Diffuse enteritis, right anterior diaphragmatic air sac contained about 500 cytodites, right posterior diaphragmatic about 200, right abdominal sac 4 oz. of a pale yellowish serosity, slightly turbid. The air sacs on left side were not examined for some hours, when but a few parasites were found in them. No further pathological lesions were observed.

Case No. 10. A brown Leghorn hen, aged three and one-

half years, property of Experiment Station, procured in Massachusetts in 1894, and was apparently well until about December 15, 1895, when she appeared dull, inattentive to surroundings, comb bluish in color, the anal plumage clean, but there was a well-marked diarrhoea present, the fæces being thin, stringy and pale yellow, emaciation marked. Killed January 3, 1896.

The abdominal and diaphragmatic air sacs were found to be filled with cytodites. Left abdominal sac contained a patch of calcareous deposit, white and opaque, about three-fourths inch in area. No further pathological lesions found.

The geographical distribution of the disease is not well known. It has been recognized in various parts of Europe, but so far as we know has not heretofore been recorded in America. It is, or was, highly prevalent in the Gallatin and Madison valleys in Montana, where it constituted a serious scourge to poultry, being more or less prevalent in nearly all poultry yards, and when not inducing evident illness or death resulted in a loss of vigor, the hens ceasing to lay eggs, the cocks becoming sterile and external and internal genitals atrophied.

I also observed the disease in a serious form in the Snake River Valley near Idaho Falls, Idaho, and am led to believe that it is widely disseminated in the Rocky Mountain States.

In those localities where the malady was observed, the altitude ranges from 4000 to 6000 feet above sea level, with a very low degree of humidity. No reason appeared to indicate that the great altitude had any influence in the existence of the disease, and the experimental transmission of the parasites to healthy fowls at this college and the rapid increase of the mites thereby, indicates that if the parasite does not prevail in other parts of the country it is more probably due to a failure of introduction than to climatic conditions.

The natural mode of transmission is unknown, but it can, so far as we can see, only occur by the entrance of the mite through the nostrils after they have first escaped or been expelled from the affected bird by sneezing or coughing. There being generally a discharge of mucous from the nostrils of af-

affected birds, this would facilitate the escape or expulsion of the parasites. Experimentally the parasites are readily transplanted and multiply rapidly. For this purpose we make an incision between the last two ribs as if for caponizing and introduce the parasites in salt solution by means of a dropper.

The constantly increasing importance of our poultry industry suggests the need of a more extended study of this parasite. It seems possible that at any time the parasite may attain a wide and serious distribution in various parts of the United States, and that poultry breeders should consequently be on their guard.

No treatment of a reliable kind has yet been found, and in fact in the present state of our knowledge any attempt at individual treatment is dangerous except in properly controlled experiments. Like other maladies due to the invasion of numerous animal parasites, an apparently sound bird may conceal innumerable mites and act thereby as a centre of infection in new flocks into which it may come.

The only profitable measures at present consist in the extermination of affected flocks and the careful disinfection of houses and yards. So far as we are able to judge, the killing of all birds in the flock, thorough cleansing of habitations and leaving them unoccupied for perhaps ninety days, affords our safest and most economical means for eradication. The refilling of poultry yards offers a renewal of danger which may be effectively met by the use of the incubator. This appliance, whatever may be said of its demerits and eccentricities, constitutes the poultry raisers safe, convenient and impassable barrier against this, as well as numerous other dangerous parasites. This method does not involve a complete change in stock and the throwing away of valuable results already attained in breeding. The eggs for artificial incubation may be safely taken from the infected flock, hatched and kept widely apart from the old birds, until when enough have been obtained the parent stock is destroyed, their habitations disinfected and the fresh uncontaminated young stock of the same lineage is ready to take their places.

EXPLANATION OF FIGURES.

- a.* Ovigerous female, ventral surface.
- b.* Ovigerous female, showing ova, one of which shows a well-developed larva.
- c.* Male, ventral surface.
- d.* Six-legged larva, extruded by pressure from body of female.
- e.* Foot with ambulacrum withdrawn.
- f.* Foot with ambulacrum extended and spur delineated.
- g.* Rostrum seen from ventral surface.

MECHANICAL TREATMENT OF LAMENESS.

BY DR. G. C. PRITCHARD, TOPKA, KAN.

A Paper read before the Missouri Valley Veterinary Medical Association, Feb. 9, 1898.

In the first place do not consider me egotistical if I should make some statements in this paper which would conflict sharply with the prescribed theories of most of our veterinary colleges as taught at the present day. Neither should you drop the subject before you have made a thorough investigation along this line, because after such an investigation, I am sure some of you, at least, will entertain ideas somewhat different from those you have learned at school. For instance, I remember well some ten years ago of reading in some horse paper a few remarks made by Mr. Robert Bonner, of whom we have all heard so much. The remarks which seemed to me too preposterous for even a second thought were the following: "I do not believe a horse would ever have a bone spavin, ringbone or splint which had a perfectly balanced foot." Now, at that time I considered the statement so utterly absurd that I deemed it not worth while to entertain the idea for one moment and so expressed myself; and, like most other professional veterinarians, a little stuck on my judgment, and to emphasize the fact a little stronger added that I thought I knew about as much about the cause of bone spavin, etc., as Mr. Robert Bonner or any other man, and that I knew from personal knowledge that some spavins were hereditary—a fact that would (to me at least) for-

ever settle the question with reference to an unbalanced foot being the cause of spavin, and therefore dropped the subject as being too simple to engage the attention of a scientific veterinarian for one moment ; and kept right on firing and blistering spavin and ringbone with indifferent success ; and all the time leaving undone the most essential part of the treatment, *i. e.*, removing the cause.

Perhaps it might not come amiss for me to tell you right now how I was convinced that the theory advanced by Mr. Bonner had a substantial basis. Several years ago I owned a stallion, a son of Riley Medium. He was quite promising, so I turned him over to a professional trainer ; the trainer allowed his feet to get exceptionally long, and the result of his long feet behind was a spavin which formed directly in front on the head of the large metatarsus, the enlargement filling up the acute angle of the hock. Of course this personal observation was very convincing and led me to investigating along this line, and, gentlemen, when I tell you the result of my investigations has led me to conclude that the statements made by Mr. Bonner are entirely correct, you will undoubtedly think me as great a crank as I would any of you with a like statement ten years ago. I take it for granted, gentlemen, that we are all anxious to learn any new ideas pertaining to veterinary science, and whether we adopt them wholly or in part each will have broadened his vision and observation, and although what at first might appear to be a trifling matter, as we become better acquainted with the subject we might look at it in a vastly different light and see much good in a thing that at first thought might appear of but little consequence.

The inexhaustible subject of the foot of the horse has engaged the attention of many eminent veterinarians and others interested in the horse for hundreds of years, and notwithstanding the remarkable progress made in the last decade in veterinary science—yet it is a regrettable fact that but little, if any, improvement has been made in the method of shoeing horses for the past one hundred years of more. Yes, practically the same

methods prevail to-day that were practiced two hundred years ago, notwithstanding the fact that the improper shoeing and paring of the feet cripples and destroys more horses or renders them unfit for use, than all other causes combined, and viewed from a financial standpoint it is no less appalling; and when I look at this subject from a humanitarian point of view, gentlemen, I blush with shame for the veterinary profession. I ask you in all seriousness, gentlemen, why is this so? Is it possible that nothing can be done to arrest the great destruction of horses, and consequently their values, from improper shoeing and paring of the feet? And why is it the veterinary colleges have been so negligent about this particular branch of the profession? When it is so well understood that in an ordinary private practice, fifty per cent. of the horse work pertains to lameness in one form or another, and again the unsatisfactory methods of treating the different forms of lameness as usually taught at our veterinary colleges, I am sorry to say, is little calculated to build up a young veterinarian just starting in practice.

Professor Gamgee, in his historical sketches concerning horseshoeing, informs us that towards the close of the last century the ablest men at that time, who had studied the subject, were deeply impressed with the importance of the art of horseshoeing, as essential to the State, to agriculture and commerce, to the efficiency of an army and the general wants of society. This was the leading idea that inspired the founding of colleges and schools first in France, then in England. The main object was the improvement of horseshoeing; the medical treatment was secondary. These men considered the foot the essential part of the horse; they were observant enough to know that the shoe was an instrument of either good or evil; in fact, life or death to the horse. And the great consideration was then felt to be, doubtless what it is to-day, a better knowledge of the art of shoeing. The art must have been in a very unsatisfactory state at that time to have called forth so much of an organized effort to place it upon a more satisfactory footing. Glancing at the records of the first college in England, its founders were dom-

inated by the same convictions, of the necessity that existed for a system of shoeing, whereby the enormous destruction of horse property, and values, then going on, might be arrested.

Professor Coleman, virtually the first president and professor of the English college, himself declared that a proper method of shoeing horses was of more importance than the treatment of any and perhaps all diseases incidental to the horse.

All through the century this statement or declaration has been repeated and emphasized by every writer of note on the foot diseases of the horse. But, notwithstanding all their efforts, hopes and expectations, they were doomed to disappointment, and the waste and destruction of horses, according to Professor Gamgee, was as rife seventy-five years later as the day the first college was established. The opinion has been often expressed, and I think it is very likely true, that the destruction of horses, and consequently their values, is many times greater from diseases of the feet than from all other diseases combined.

By some the present century is said to have been the greatest century of progress in the various arts of which we have any historical record ; in view of which we might well ask, what has been the progress, if any, in the science or art of shoeing horses during that period ?

I imagine I hear some of you saying " what has all this to do with the mechanical treatment of lameness ? " I will try to explain : it is quite a difficult matter to explain the full meaning of the term " perfectly-balanced foot ; " especially is this so when talking to non-professional men ; but as this paper is designed for professional men exclusively, it should not be so difficult to make myself understood. Now, the definition I would give of a perfectly-balanced foot would be a perfect articulation between the os corona and os pedis ; when we have a perfect articulation in this joint we have nothing to fear either from the foot or the balance of the limb. You will readily understand from this that I ascribe most of the ills of horseflesh in the limbs, in the primary stage, to a faulty articulation at this joint ; and why ?

Because an extensor and a flexor tendon are inserted or attached to the os pedis, making of the os pedis a perfect fulcrum for the articulation of the whole limb; and it needs no great degree of scientific knowledge to understand that perfect harmony must be maintained between these tendons, and the only way to maintain this harmony is by keeping the os pedis in a perfectly horizontal position, that is to say, by keeping a perfectly-balanced foot laterally and a relative height of the heel and toe; as it will be readily seen that with a long high toe we will have a corresponding elevation of the toe of the os pedis. Now, imagine, if you please, a poor horse trying to perform his daily labors with an abnormally long, high toe; thus throwing the articulation of the coffin joint out of harmony; that is to say, the articulation is more on the extensor than on the flexor surface of this articulation, and it is no exaggeration to say that the poor horse is probably badly out of balance laterally with a high inside heel and toe, or the reverse; and is it any wonder that we have the whole machine out of balance and that ring-bone, spavin, splints, navicular disease, etc., etc., follow as a natural sequence. I think the wonder is that they last as long as they do. And what is the condition of the joint when we have an uncommonly high heel? While this is a condition of the foot that we seldom meet with, yet, nevertheless, we do occasionally meet with a foot with an uncommonly high heel; and while nature has wisely provided the horse with a long flexible pastern which would naturally overcome to a great extent the ill effects of an abnormally high heel, yet harmony is lost, and that elastic, springy action so greatly admired by everybody is gone, never to return until that foot has been restored to a perfect balance. Now the cause of ordinary bone spavin, I think, is a high inside toe. Why? because the concussion and jar sustained by the joints and bony columns of the limbs must be greatest above the highest part of the foot; and to verify this statement one has only to look for a recently formed spavin which is characterized by well-marked lameness, to find a high inside toe; and, furthermore, when the high in-

side toe is reduced we will usually find the lameness correspondingly removed, perhaps not instantly, but in a few days the acute lameness will be gone and the same remarks will apply to ringbones and splints. In navicular lameness we have the long, high toe as compared to the heel, elevating the toe of the os pedis, destroying harmony in the navicular articulation, causing friction, which produces inflammation, which in turn dries up and robs the joint of its natural lubricating synovia. Then follow structural changes, such as destruction of articular cartilage, fibrilization of tendons, adhesions, ossifications and all the other changes incidental to navicular trouble, and the result is a poor decrepit, dejected animal, compelled to travel on our hard-paved streets from morning till night, suffering untold agony ; mutely appealing for sympathy, but unable to make its sufferings known, an object of compassion and sympathy from every passer-by, and should be a monument of disgrace and shame to its inhuman owner ; and to think that all of the years of suffering of the poor animal, and the financial loss to the owner, might have been prevented by so simple a thing as balancing the feet.

Another very curious thing not generally understood is the cause of those soft, bursal enlargements about the fetlock joints of horses, usually called wind-puffs. Ninety per cent. of all driving horses wear the outside of the foot or shoe faster than the inside ; and if you will take a little pains to investigate this matter you will observe that the bursal enlargements are more pronounced on the outside, corresponding to the lowest part of the foot, which is unmistakable evidence of a low outside heel or both heels, being the cause of wind-puffs ; and if you will remember what I have already said with reference to the cause of spavins, ringbones, splints, etc., it will be hardly necessary for me to add that all bony enlargements correspond to the highest part of the foot. Of course, exceptions will be found, due to recent changes having been made in the foot by the shoer, who has unknowingly perhaps balanced the foot. What I wish to impress more particularly on the minds of the members of this

association is the great importance of studying the action of horses, both while in action and repose ; to me it is the most interesting study connected with the veterinary profession.

Perhaps you think me unduly exercised over this branch of the profession ; but when we stop to consider how few of our most scientific veterinarians are really experts in lameness, as compared to the whole, it must suggest itself to the mind of each and every one of us that this branch of veterinary science has been sadly neglected. Undoubtedly we all have special natural gifts that would enable us to excel in some particular branch of our profession ; nevertheless, there are a few cardinal principles connected with the balancing of horses' feet which so determines the future value and usefulness of an animal that it certainly should receive our most careful consideration. Who would undertake to estimate the financial loss alone, to the trotting and pacing horse industry of this country, caused by a lack of knowledge upon this subject ? I am perfectly satisfied that thousands of fast trotters and pacers annually break down that would not had their feet been perfectly balanced. How could it be otherwise with our army of trainers, many of them very incompetent ; with millions of crude devices to overcome faulty actions, without a thought of how it may affect the future usefulness of the animal, the only consideration being speed. No matter should the device produce friction with its accompanying results, namely, early decay, and eventually break down ; as long as the poor animal can go—go he must. I have seen valuable horses started in races that for the good of the horse, and for that matter the owner too, should not have had jogging exercise even ; and the only reason I can give for their doing so is blank ignorance on the part of the trainer.

In connection with a properly-balanced foot it is also essential that we note the proper method of preparing the foot for the shoe. First, note the general aspect of the feet while standing upon a perfectly level floor ; then have the horse walk for a short distance and notice particularly the foot as it lands upon the floor. Should the toe be too long and high as compared to

the heel, the toe will be the first part of the foot to touch the floor. In a sound horse with perfectly-balanced feet, the heel should strike the ground or floor a shade the quickest, or at least at the same time. Now you will have a general idea the way the foot should be pared. Rasp the wall down even with the sole, but do not touch the sole. Why every horseshoer should everlastingly cut and pare the sole of the foot into that deep, hollow cup-shape I never could understand ; there is certainly no good reason for doing so ; but, nevertheless, ninety-nine out of every hundred do it, and it requires quite a good single-handed talker to talk them out of this practice. Horseshoers, as a rule, are very touchy in receiving new ideas along this line, and the only way to have your wishes complied with is to superintend the job yourself. I have thought for a long time that a chair should be established with our veterinary colleges upon scientific horseshoeing for the benefit of horseshoers as well as students, giving them practical instructions along this line, and with the prestige gained by such a course, the average horseshoer could well afford to spare the time and money to acquire it.

All of which is respectfully submitted.

PASTEURIZATION VERSUS PURITY.

BY HOWARD B. FELTON, B. S., V. M. D., PHILADELPHIA, PA.

Read before the Pennsylvania State Veterinary Medical Association, March 9, 1898.

The above title has been suggested by a paper read recently by Dr. John I. Carter, before the Avondale Institute, in which he condemns the Pasteurization of milk, claiming that by this process the life principle is taken out of the milk and it is rendered unwholesome and innutritious. Dr. Carter rightfully contends for "an absolutely wholesome milk, produced by a healthy, vigorous cow, fed on sweet, wholesome food, kept in untainted environments, milked in a cleanly manner and the product kept from after contamination." Such a milk is indeed an ideal product and in no need of Pasteurization. The nearest approach to it at the present time is the milk produced upon the

“ Walker Gordon ” dairy farms, where every precaution known to modern science is taken to prevent contamination. Such a milk may be regarded as above suspicion, but, unfortunately, the amount of it produced as compared with the total supply is but as a drop in the bucket. It has occurred to us that in the present condition of our milk supply it is unwise to condemn Pasteurization and that it is the most valuable means we possess of safeguarding one of our most important food products. Milk is one of the most favorable mediums for the growth of bacteria. As produced and sold in the ordinary way it literally swarms with them. Samples taken at random from the milk supplied to any of our large cities will show anywhere from 500,000 to 1,500,000 bacteria per cubic centimetre. A large number of the bacteria found in milk are such as cause the usual acid fermentation which occurs when milk turns sour, but there are many species which ought to be excluded, arising from mouldy hay, straw or fodder, partially decayed roots and the natural decay of the woodwork of the barn and adjoining buildings. Many of these bacteria cause alkaline fermentation and other abnormal conditions of milk.

The question is often asked—why are we not all destroyed by the countless numbers of microbes that are in the air we breathe, in the water we drink and in the food which we swallow? Dr. H. Beauregard, an eminent physician of Paris, in an article on “ Microbes and Man ” in the *Revue Pédagogique*, a translation of which appears in the *Literary Digest* of Jan. 5, 1898, has shown that the human body is perfectly organized to resist the different phases of the attacks of the microbes and has also shown how we may succumb to them. “ Before reaching us they have already encountered conditions which put them in a certain measure in a state of inferiority. The oxygen of the air and light are agents which injure their vitality. From this fact arises the importance of hygiene. Having reached the skin, microbes find an efficacious barrier in the cells of the epidermis, of which those on the surface are horny and in a continual state of desquamation. This may be called the physical

defense of the epidermis. The skin also contains glands producing sweat and oily matter. These substances are eminently unfavorable for keeping up life in microbes. Should the microbes penetrate into the glands themselves, they are borne out upon the current of gland secretion when the gland is excited into action. Those microbes which enter the mouth and nostrils, find a membrane lining there composed of cells not unlike the cells of the epidermis, and this membrane is constantly moistened with liquids which are not at all favorable to the development of the assailant. If the microbes manage to get into the œsophagus and so reach the stomach they find there conditions which are not good for their health in the shape of chlorohydric, lactic and other acids."

According to Escherich the bacillus lactis ærogenes is found normally in the stomach and is responsible for the conversion of milk sugar into lactic acid, which is a powerful germicide for the other forms of bacteria. "Many microbes are absolutely incapable of getting through the stomach and penetrating into the intestines, for they have been so battered and knocked about and their vitality has been so much lowered by their troubles on the road that they end by being destroyed and even digested in the stomach. It has been proved, however, that mucous surfaces are not always an obstacle to the penetration of the microbes even when these surfaces are intact. Suppose the microbes manage to penetrate the tissues, then they meet with new obstacles. They find in the first place what are called phagocytes—that is, cells which are eaters. These elements of the lymph show surprising activity, swallowing the microbes and digesting them. These phagocytes are most abundant at threatened points. If in spite of the phagocytes, the microbes get into the blood, they have not won the battle yet. The serum of the blood has microbe-killing properties. The oxygen that is carried into the blood disagrees with many of the microbes, as carbonic acid does with others, and thus it is that the blood is rarely invaded with microbes in the course of the maladies they engender. If the microbes take up their residence in the heart

of the organs, even there they meet with elements of resistance which are often efficacious, such as defensive proteins and other antitoxic substances produced by these organs. When, however, the general functions of the system are troubled either hereditarily or by reason of an acquired abnormal state, such as gout, diabetes, visceral, pulmonary or hepatic inflammation, the conditions of resistance are changed, for these by vitiating the regular functions of the organs, affect the vitality of the tissues and particularly the phagocytic elements. The microbes are destroyed in much smaller quantities and they no longer find antitoxic products which ought normally to oppose their development and neutralize the effect of their own poisons. In a word, they find a field of culture in which they cannot fail to flourish and multiply. The consequences are immediate, the infection of the tissues begins, the poisons produced by the microbes are spread throughout the organism. Such is the mechanism of the origin of diseases called infectious.

From all this it is plain that everything which enfeebles our vitality is a dangerous condition and exposes to invasion. The most varied influences can come into play to create in us a condition of inferiority which will oblige us to surrender to our foe. Privations, great fatigue, the ingestion into our systems of toxic substances, intoxication by lead or alcohol, atmospheric conditions, excessive heat, intense cold, are so many elements which must be reckoned with.

There is no warrant, then, for neglecting microbes and considering them an enemy of slight importance. It would be folly to think that we may fold our arms and trust to our natural powers of resistance. On the contrary, we should always keep in mind that we have in microbes terrible adversaries, always on the alert to surprise us and against which we are bound to maintain as intact as possible the natural defenses with which our organisms can oppose them." We believe one of our most valuable allies to be Pasteurization. In our opinion Pasteur has done no more valuable service for mankind than in giving us the process which bears his name. When we think of the vast

number of infants deprived of the mother's milk which nature intended them to imbibe and depend upon the cow for their source of supply. When we consider that the natural powers of resistance of the infant are far below those of the adult and that by reason of the enervating heat of summer, or the cold of winter, or bad hygienic surroundings these powers are still further weakened, we see how important it is that they should be supplied with food free from germs.

It has been proved that milk has been the medium through which tuberculosis, typhoid fever, scarlet fever and diphtheria have been contracted. The colon bacillus is held responsible for producing ileo-colitis or the ordinary summer complaint of children. Milk rich in bacteria is regarded by the highest authorities as being difficult of digestion for children and causing food vomiting, dyspepsia, mycotic diarrhoea and ileo-colitis. In the absence of a systematic inspection of milk at the dairies by trained veterinarians how can we know that the milk supply will be free from these germs? We do know that Pasteurization will destroy these germs. By Pasteurization we mean heating the milk up to 167° F. and keeping it at that temperature for 40 minutes by means of live steam. This has been found to be the best method and is that practiced in the Walker-Gordon Laboratories. The highest thermal death point of all germs ordinarily found in milk is 157° , so that a safe margin is allowed. It is important that the milk should be rapidly cooled after this process in order that bacteria may not develop during the time of cooling. It is most conveniently carried on in vessels containing not more than half a pint, which must be tightly stoppered and are not to be opened until used. Milk Pasteurized in this way does not lose its distinctive taste or odor, nor is its nutritive value or digestibility impaired in any way. It has been claimed that by this process the life principle is destroyed. We do not believe that any life is destroyed except that which is harmful by its presence. The coagulation of the proteids does not begin until 171° F. is reached, when changes take place which render the milk more difficult of digestion.

The Walker-Gordon Laboratories are supplying large numbers of infants and children in all of our large cities with milk that has been Pasteurized. Although they furnish milk comparatively free from germs, it is deemed best as a matter of precaution to subject it to this process. Physicians are getting results by means of this scientific feeding rendered possible by these milk laboratories that they have never attained before. We believe that the Pasteurizing kettle will become a rival of the tea kettle when its virtues are more widely known. Science has given us a clear light upon this subject. Let us not go back to the darkness of the past.

PRESIDENT RAYNER'S ADDRESS,

DELIVERED BEFORE THE ANNUAL MEETING OF THE PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION,
AT PHILADELPHIA, MARCH 8, 1898.

Fellow-Members and Colleagues :

The assembling to-day of our association in annual convention is an occasion worthy of more than passing notice. It marks another period of our history and it is well for us to look back and note how well the year's work has been done. I am proud to say that I have had the earnest support of my fellow officers, and that much work has been done looking to the welfare of our calling. Our semi-annual meeting at Franklin was perhaps the most successful we have held during the past ten years, in attendance, in scope of work, in pleasure, in increased membership, and everything that adds to our progress.

When I recall the early history of the profession in Pennsylvania, at a time when many of you were not born, and that the Philadelphia Veterinary College was the first lawfully chartered veterinary college in America, and note the same intense interest in professional advancement, I am more than proud of our record in the profession.

While the college remained but a few years in active teaching, still its influence was good, it led to the first movement to establish a veterinary chair in the University of Pennsylvania,

and two of the foremost pioneers in medicine and surgery urged its importance and advocated its establishment. I refer to the honored names of Professors Gross and Elwyn, who joined with Professors McClure and Jennings, of our own branch of medicine. At that time our University was on Ninth Street, and the little room it had made it next to impossible to establish this department. The Philadelphia college, with but few students each year, not enough to support it, without State or private assistance, was compelled to close during the session of 1866-67.

The University moving to West Philadelphia a few years later, still appreciating the importance of this branch of scientific study, kept fully alive to its necessity and established this department in 1883, with our esteemed colleague, Prof. R. S. Huidekoper as Dean, with Drs. Zuill, Hoskins and Glass as instructors, and its work of recent years in sending forth well-equipped and efficient veterinarians is known to you all.

In association work our State has an enviable reputation. It had a number of its practitioners among the roll of organizers of the United States Veterinary Medical Association formed in 1863. The aim then of contributing to the diffusion of true science and particularly the knowledge of veterinary medicine and surgery, is still its motto and field of work, and to-day, with its membership of over four hundred, are to be found working along, shoulder to shoulder, many of the earnest workers in veterinary science of the Keystone State.

The first Pennsylvania association was organized in 1865, and it continued in more or less active existence until 1883, when its most active members joined with others in the formation of this association, that chose for its first President our still active and worthy member, Dr. Jas. W. Sallade. With many graduates of the American, New York, and Canada colleges and a large number of excellent practitioners, this organization has marched on for almost a score of years, more earnest and faithful to all its duties with each added year of its existence, until it has a well-earned reputation, second to none, for good work.

The Keystone Veterinary Medical Association of this city

and vicinity, organized October 7, 1882, has continued in active existence ever since its first meeting and added each year its assistance to the welfare of the veterinary profession. More active than ever, its work during the present and past year has made each of its members justly proud of its labor and achievements.

With our other local associations of the Schuylkill and Wyoming Valley, most of whose members are active in this organization, I assure you, fellow-members, I am justly proud of the record made by Pennsylvanians, and I am more than proud of the honor of your recognition as President of such a body of earnest men and, after an active career of nearly forty years in the pursuit of veterinary practice, the greatest honor I could wish for has been bestowed upon me by this organization and at a time when illness prevented my presence, but your recognition and esteem was never worn more proudly and with more earnest and devout wishes for the good of you all, than my whole heart has wished for the advancement and welfare of one and all of you.

I now welcome you all to Philadelphia and invite your close attention to the excellent programme that has been prepared for you and to every enjoyment of it possible.

TREATMENT OF PARTURIENT APOPLEXY.

BY W. H. WELCH, M. D. C.

A Paper read before the Illinois State Veterinary Medical Association, at Bloomington,
February 16, 1898.

Parturient apoplexy is a disease of very common occurrence, and one with which, until recently, I had unsatisfactory results; and from what I can learn I am not the only one who has had this experience.

Having seen good results from the administration of homœopathic drugs in veterinary practice, I decided to try them in this disease.

Not expecting such good success, I did not keep a very ac-

curate record of all the cases which I have treated ; but I would like to call your attention briefly to a few of them.

Case 1.—At 11 o'clock, April 29th, I was called to the country to see a grade Durham cow, aged seven years, that had had her calf the evening before. It was a well-marked case of apoplexy. She had been lying on her side in a helpless condition for several hours. First, I secured her in a natural position on her sternum. I found her temperature slightly above normal and pulse 82°. I administered potentized belladonna and in less than one hour the pulse had dropped to 72°. Instructions were given to keep the animal in the same position and to give veratrum veride of same potency at intervals of three hours. Returning in the evening, I found the animal in the same condition that I left her. I now changed to belladonna and upon my return next day found her able to hold up her head, and had passed fæces. Continued same treatment. Next day found her lying in natural position, and able to take food and water when offered, but unable to rise. I then changed to nux of same potency. She remained in this condition for about six days, when she got upon her feet. Secretion of milk returned to normal, and she made a good recovery. I have been told by owner that she is due to calf in March.

Case 2.—July 1st, I was called to see a grade Jersey which had her calf at noon of previous day. The owner had noticed in the evening the cow was not well, and in the morning found her lying on her side in the field. I arrived about 10 o'clock, found her lying in the hot sun, perfectly helpless and covered with flies. A few boards were nailed together, the patient rolled on, and hauled to the orchard, and placed on straw in the shade. Secured her in natural position, and gave belladonna with directions to be given three times a day. Cloths saturated in ice cold water were applied to her head. A blanket was thrown over her back, and her back thoroughly warmed with a heated smoothing iron. I directed this to be done every two hours. On leaving I promised to return the next morning. The next morning, the owner came to my office,

and informed me that the cow was up, walking around and all right. Thinking her out of danger, I gave no more medicine. The sixth day the owner came and told me the cow was sick. I found her very uneasy, breathing hurriedly, frequent evacuation of the bowels of a thin watery consistency, and pulse very much accelerated. She died the following day.

Case 3.—July 16th was called to see an eleven-year-old Durham which had had her eighth calf three days before. I found her lying in the field, where she had gone down some time during the day. After securing her in the usual manner, I proceeded with same treatment as in the preceding case. Hearing from her every day, I decided not to change treatment. On fourth day she gained her feet and made a rapid recovery.

Case 4.—Aug. 19th was called to see a grade Durham that had taken sick the day before. Arriving at 4 o'clock in the evening, I found her down with the usual symptoms. I proceeded in same manner as in two previous cases. I returned the same time the following day and found her better. Continued same treatment. Next day owner came to my office and told me the cow got up shortly after I left and was doing well.

IS THE ACTUAL CAUTERY BENEFICIAL IN RINGBONE OR NOT?

BY CHARLES BLAND, V. S., ROXBOROUGH, PA.

Read before the Pennsylvania State V. M. Association, March 9, 1898.

I have considered this subject for several years and have come to the conclusion that the horse can be cured of ringbone without the use of the firing iron, provided you can impress upon the owner the necessity of rest for the animal, but if you cannot, by all means fire him. I find it a very hard matter in the locality I practice to get rest for a horse unless I have him in my stable and remove his shoes.

My treatment is to cut the hair off and apply hyd. chl. corr., 3i; aquæ, 3xvi, well rubbed in twice a day for a week, then wash with hot water; after three days repeat the treatment;

continue this for a month, and in most cases I succeed in curing the lameness.

As you are aware, there are many cases that cannot be cured at all, no matter what treatment you use. You must remember, an animal should not be put to hard work for several weeks after, and as horses are rising in price now, owners will not mind giving us more time for treatment. Another point, in case you do not cure you have not blemished the horse for the owner to everlastingly tell you and his friends about it.

No doubt many here will say the application is not strong enough, but I am satisfied we have been using too energetic means very often. I have tried this treatment on spavin, and have relieved a number of animals and cured some.

When I began, and for several years after, I used to fire and blister, but seldom do it now until I have tried this remedy.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

NOTES FROM CASE BOOK.*

By J. H. McLEOD, D. V. S., Charles City, Iowa.

IMPACTION OF COLON WITH SAND.

Almost one year ago, I was called to treat a family driver, aged, and said to be suffering from pain in the abdomen. At first sight the symptoms presented were similar to those of colic, but later they were unmistakably those of impaction. Pulse, slightly accelerated, temperature normal. The animal refused all food and water, kept up a continuous pawing, and on lying down, did so carefully, and lay quietly. Treatment was as follows:

R Calomel, 3 i.
Aloes, Barb., 3 ix.
M. fiat bolus No I.

This is about the usual dose here, as the 3 vi to 3 vii doses which I have been accustomed to give in the East make here but little impression. Anodynes to relieve the pain, with

* Read at meeting Iowa State V. M. Association.

walking exercise till the ball would operate, which it did in about twenty-four hours, bringing away a large quantity of fæces, but no sand. When the purging ceased there was altogether a decided improvement. Called again in great haste the following day, found symptoms presented much the same as the day previous, but greatly aggravated, there being intense pain. Similar treatment was adopted, with the addition of hypodermic injections of morphia sulph., gr. i. No passage of fæces during the second day. In the evening the symptoms became so alarming that I deemed it best to destroy the animal. The post-mortem rather astonished me. I expected to find something different from the usual impaction of the colon, knowing the first ball operated so well. The external appearance of the bowels were apparently normal, but I was surprised at their enormous weight, and on cutting into the colon I found it contained a very large quantity of sand, broken horseshoe nails, etc. (nearly half a bushel). By inquiry into the history of the case I found the animal had been, during the previous summer, pastured in an adjoining field, which had been over-run with sand during the spring floods, also the fact as that the horse was an old favorite of the family, he was allowed to run sometimes at will around town. The frequent visits to a blacksmith's shop in the neighborhood accounted for the presence of the nails, etc. The singular feature of the case lies in the fact that there had not been previous to my call a single symptom of abdominal pain, with the exception of an attack of a few hours' duration one year previously.

RUPTURE OF THE STOMACH.

On September 2, last, I was called to attend a draught horse with the following history: The animal was apparently in the best of health when he went to work with his mate in the morning. His daily rations consisted of six quarts of oats and six ears of corn, with an unlimited amount of water before and after feeding. About the middle of the forenoon the animal showed symptoms of colic. When I arrived, I found him uneasy, pawing with fore feet, and lying down frequently. Respiration hurried, heaving at the flanks, rapid pulse, ears warm, mucous membrane slightly injected. No manure had been passed since early morning. I gave chloral hydrate, $\bar{3}$ i, in bolus; also oleum lini (raw), one quart. In the afternoon he was no better, was lying down mostly all the time from pain. Gave colic drench, but he continued to roll about, with quicker respira-

tions, the heaving at the flanks more pronounced, mucous membranes now highly injected; about five minutes later he gave another roll and got up; his countenance was anxious, and he looked around to his flank. He stood with his legs apart, and commenced to perspire profusely, making many attempts to lie down, but was afraid to do so. Half an hour later he went down suddenly and died. Post-mortem revealed a rupture of the stomach towards the pyloric orifice; some of the contents of the stomach were in the abdomen. The animal had been overfed, causing indigestion and over-distention. Rupture was, in my opinion, caused by mechanical violence.

NITRIC ACID IN THE TREATMENT OF UMBILICAL HERNIA.

An article by M. F. Peuch (see March number *Journal of Comparative Medicine*). I have tried this treatment for umbilical hernia, and with very satisfactory results. Of three cases two were completely cured, with one application. The third case yielded to a second application in fifteen days. Method of operation is simple. Take a piece of cotton or oakum, and after saturating with pure nitric acid, paint the tumor over its entire circumference, passing the swab over it three or four times. There is little fear of protrusion of the bowel.

CANTHARIDES POISONING IN A HORSE.

By W. A. HECK, D. V. M., Kansas City, Kan.

I believe it is rare that a veterinarian has the opportunity to witness a fatal case of cantharides poisoning in the horse, therefore the following case which occurred in my practice may prove interesting and instructive. Many, no doubt, will be surprised that so small a quantity will cause death in so short a time.

The drug was administered to the horse by a foolish young man who had heard that cantharides was an aphrodisiac, and gave it for this effect; now he is a sadder but a wiser man.

The subject was a three-year-old saddle stallion, of unusual merit, bay in color and weighing about 1000 lbs.

July 11th, 1896, at 3 o'clock P. M., he was given as a drench in water two drachms of powdered cantharides. The desired effects were looked for closely, but, alas! they never came. Instead of "bracing up," he looked a little sick, and the owner began to feel alarmed and came directly to my office. I saw the horse about thirty minutes after he had received the drench, and before he had become very sick. He stood in his box, with head down in the feed trough, and breathing rather hurriedly

The saliva was driveling from his mouth, and on examination the lips, tongue and all the mucous membrane of the mouth were seen to be severely blistered. The pulse was weak and legs cold. He looked quite cheerful from his eyes; in fact, his expression from these organs never looked distressed till just before death.

An attempt to give him a drench of demulcent with opium was made, but he could swallow only with great difficulty. He rapidly grew worse and by six o'clock he would squeal when he made an effort to swallow, and administration of anything per mouth was discontinued, and, knowing that death was inevitable, only hypodermics of morphia were given, but soon this had no perceptible effect. Gradually he grew worse. He became more restless, would paw the floor for a moment, then attempt to lie down. At frequent intervals he would attempt to void urine, but would pass only a small quantity and with evident pain. Frequent passages of mucous-covered fæces the first two hours, but this symptom was not noticed later in his sickness. Perspiration stood over his body, which was very cold to the touch; thermometer registered 101° at 6 P. M. About this time he began to lie down and roll on his back, which position he seemed to prefer. At 7 o'clock P. M., suffering very great agony, and the thrashing about and wild striking with the limbs, made him dangerous to handle. About 11 o'clock P. M. a peculiar crackling of the joints was observed, as if the synovia had completely dried up, and the "hinges" fairly creaked. It was noted that the limbs were very clean and fluted; there did not seem to be an ounce of areola or fibrous tissue beneath the skin, and the tendons stood out like cords of rope. Still he champed his jaws, while saliva, with shreds of mucous membrane, driveling from the mouth, and rolled and tumbled and stretched to urinate at short intervals until one o'clock A. M., when he grew easier and remained quiet for thirty minutes. He looked a sorry sight at this time—lips pendulous and swollen and body covered with perspiration ice-cold. Suddenly he gave a leap from the farther corner of his box for the door, but luckily we had it closed and barred, but in spite of the precaution he nearly broke through it. After struggling against it for five minutes he fell in a heap dead at the door—at three o'clock, twelve hours from the time of taking the draught.

Post-mortemed at 2 P. M., July 12th.—The digestive tract from the lips to the floating colon was inflamed. The œsophagus was entirely denuded of its mucous membrane; its muscular

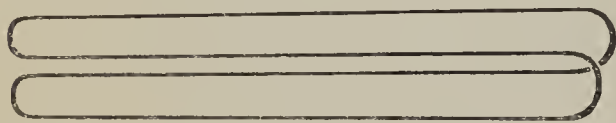
wall, as well as the cervical muscles for two inches surrounding the œsophagus and trachea was perfectly black from inflammation. The stomach wall was inflamed, but the mucous membrane was still intact, but could be easily pulled away. Small bowels in nearly as bad state of inflammation as œsophagus, but large colon not so bad, the small colon normal. Kidneys and bladder were not inflamed as badly as would be expected, possibly from the short duration of the disease. Other organs apparently normal. Brain and cord not examined. The blood vessels, both veins and arteries, were empty. Heart empty, except the right ventricle, which contained a clot resembling those found in acute rheumatism. This absence of blood I considered a strange condition. Flesh was light in color, as if the animal had been bled. Will some one please explain what became of the blood?

DISTRESSED BREATHING IN A COW.*

By J. F. BUTTERFIELD, V. S., South Montrose, Pa.

In April, 1891, I introduced a tracheotomy tube into the trachea of a two-year-old registered Jersey heifer, belonging to Mr. M. W. Palmer, of Kingsley, Susquehanna Co., Pa., to relieve the acute distressed breathing caused from internal and external swelling, in a case of laryngitis or pharyngitis. She wore the tube from Sunday until Friday, when it was taken out, the swelling having subsided and breathing was normal. The wound healed in due time.

About two years ago, this same patient showed signs of distressed or labored breathing. It continued and gradually grew worse until last July, when it was continuous; could hear her several rods away. In fact, it was very distressing to hear her.



Owner said I must remedy this in some way, so that it would be no trouble to him. Upon examination I found the two tracheal rings that were cut to introduce the tracheotomy tube had flattened, nearly closing the trachea. To remedy this lesion I made a piece of No. 12 hard or spring silver wire into this shape or like a speculum. I cast the cow in the usual manner, opened the two flattened tracheal rings as in the first operation, six years before; introduced the wire, and with a piece of soft silver wire fastened the upper end of speculum to one of the tracheal rings that had not been cut. Closed the wound with antiseptic dressings, etc. On the cow's regaining her feet, she

* Read before annual meeting Pennsylvania S. V. M. A., March 9, 1898.

went out and commenced feeding as though nothing had happened. Not a cough, nor any symptoms of the distressed breathing.

Her owner, Mr. Palmer, writes me, March 3, 1898: "The cow is doing as well, is in as good health, and breathes as well as any in the barn. She dropped a nice heifer calf in September, since the operation, which I am raising."

THE FATALITY OF THE CÆSAREAN OPERATION.*

By A. G. ALVERSON, D. V. S.

Having had at several times in practice a case of occlusion of the uterus by the formation of a fibrinous ring at the ostium internum, and having in each case tried by scarification and pressure to dilate such parts and put them in as near a natural shape as possible for a normal delivery, and at each time having been unsuccessful, I had determined that when next a like case came up, would try Cæsarean section.

This cow had been in trouble all the latter part of the night, at least. The foetus being pushed against the closed and indurated os, and the expulsive effort having been great, the vagina had been everted almost completely. The cow had been confined in a lot with the family porker, and the hog had taken one chew from the wall of the everted organ. On my arrival blood was still running from this abrasion, and at each successive expulsive effort the flow of blood would be augmented. The loss of blood had been considerable, but the cow still seemed to be strong. The owner confined the cow for operation by tying with a good strong head halter to the manger, and drawing the hind feet as far back as possible, to the opposite side, with the cow flat on her left side. I clipped the hair quickly from the seat of operation, carefully cleaned and disinfected it. I made an incision some sixteen or eighteen inches long through the skin and subjacent tissue, partially cut but largely separated with my fingers through the muscles, cut through the wall of the uterus, and removed without farther difficulty a dead calf. I then cleansed my hands by a dash in carbolized water and started to remove the afterbirth. Being so absorbed in my work, I had taken very little notice of the cow since starting with the operation. The placenta did not loosen very easily, and before half removed all motion of the patient ceased, and, pausing to look, found her dead also.

* Read before the Illinois State Veterinary Medical Association, at Bloomington, Feb. 16, 1898.

I would like the opinions of my listeners as to the principal factor in the cause of this death. Was the method of confinement with the body well stretched out in a straight line the cause, or was the shock too great after the loss of so much blood, or is the operation of such a grave character that death is liable to occur in any subject.

AN EXAGGERATED CASE OF HYDROPS AMNII.*

By E. S. FRY, M. D. C., Naperville, Ill.

On Monday night, Feb. 7, 1898, I was called to the country, about five miles distant, and found a nice black Norman mare, four years old, in foal, due in April next. Her abdomen was so distended that the respirations were very short and quick. The owner thought it was tympanites. I made a rectal examination, and, with the aid of abdominal percussion, I diagnosed it as hydrops amnii. I opened the os, which dilated easily, punctured the membranes, and inserted a half-inch hard rubber hose, produced a syphon, and took away 60 gallons of water by actual measurement. The mare became very weak, so I administered stimulants every twenty minutes until she began to get stronger, then every hour during the night. The next morning I made an examination and found a posterior presentation of the foetus and lots more water, so I resorted to the hose again and took away 15 gallons more (in all 75 gallons). I then took a blanket, folded it together, put it under the abdomen, a man on each side, and thereby raised the abdomen, so I could reach the foetus, which I delivered. I also removed the foetal-envelopes, and found attached to these any amount of small bladders, filled with water, in size from a hen's egg to that of a man's head. The mare became very weak by this time, so that she fainted. I gave stimulants in liberal doses, but she seemed to be very much in pain and kept straining, so I put her under the influence of morphine for two days. I sterilized the womb twice a day, administered milk and eggs, diffusible stimulants and quinine and iron. I regulated the bowels with oil and physostigma. To-day (Feb. 13th) the mare is making a nice recovery.

* Read before the meeting of the Illinois State Veterinary Medical Association, Feb. 16, 1898.

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

LAPAROTOMY IN HORSES.—This operation is comparatively of no common occurrence in horses, though with the progress made in surgery and the benefits obtained by the proper use of antisepsy, veterinarians of to-day are less afraid of the dangers which were more or less attached to all surgical interferences.

(1) In the *Veterinary Record* Mr. W. N. Scott, M. R. C. V. S., relates a case of a horse which during an attack of colic, lasting over 48 hours, was constantly nibbling at the skin of the left flank during the pains. Notwithstanding careful treatment, no relief was secured, and, suspecting some peculiar abdominal occlusion, it was decided to have recourse to an operation. The horse was chloroformed, the skin carefully washed with antiseptics, was incised by a slightly vertical incision backwards and upwards, the muscles divided, and with care the abdominal cavity entered. On exploring the left flank "two distinct convolutions of bowels were firmly adherent to the parietal peritoneum and in such a way as to give the intestines a banded condition, thereby diminishing their calibre." By digital manipulations the visceral and parietal surfaces were disconnected. The various layers of the wound were separately brought together by sutures and a dressing of iodoform laid over it. The animal evidently obtained relief by the operation, pains were gone, slight appetite, movements of the bowels; the temperature, however, which 12 hours after the operation had been 101° , soon rose to 103.1° F., 104.1° and death occurred some 24 hours after the operation. At the post-mortem "the wounds were found in good process of healing, the peritoneum seemed healthy at the seat of operation. The jejunum for about 12 inches was congested, and so also was the mucous membrane of the cæcum. The gut that was adherent was slightly corrugated on its surface, the peritoneum was opaque and slight union had taken place. The mucous membrane of that part of the bowels was very much congested."

(2) In the *Journal of Comp. Pathol. and Therapeutics* Mr. F. Hobday, F. R. C. V. S., relates with details another similar case in a mare which was operated upon after four days of abdominal suffering and obstinate obstruction of the bowels. This obstruction was detected by direct abdominal examination at the termi-

nation of the double colon ; " it was clearly what is commonly termed a dust-ball." It was broken into small pieces with the hands of the operator and the operation ended with the ordinary antiseptic measures. The animal lived for nearly a week. At the post-mortem a dust-ball weighing 6 lbs., and measuring $18\frac{1}{2}$ by $19\frac{1}{2}$ inches, was found in the large colon at its junction with the floating colon. These two cases show that laparotomy is not an operation to be undertaken in horses, unless the diagnosis is certain, and that even when the greatest care is taken the probable sequel is always to be taken into proper consideration.

RUPTURE OF BOTH SUSPENSORY LIGAMENTS [*By Mr. H. C. Jagger*].—This case is rather peculiar on account of the location where the ruptures of the ligaments were said to have taken place. It is stated that in both fore legs of the mare in which the accident happened " there were no bones broken, the flexor tendons were not ruptured, but merely both suspensory ligaments about their middle." At the time of the accident, the mare was trotting gently along under a hedge and the rider had only noticed her stumble once before, immediately prior to the accident. She gave way at both fore fetlocks and was standing with her feet in front of her, the soles pointing straight to the front, resting, as it were, on the distal end of each large metacarpal bone, one of which had pierced the skin and rested naked on the ground. The history and the symptoms point very much to that lesion which is not uncommon in the United States, cases of breaking down, of giving way of the insertions of the suspensory ligaments at the great sesamoids, with changes in the structure of the bones and the ligamentous tissue also.

CANINE DENTISTRY.—To Mr. Hobday is due this probably unique and interesting case. It is that of a dog, whose teeth had almost all disappeared from old age, with the exception of four good canines and four carnassial molars. With the assistance of Mr. E. Moseley, L.D.S., an impression of the mouth was taken, and a plate of platinum, with 24 teeth (6 incisors, 6 molars and premolars in each jaw), was made. At first the animal seemed to object and manifested great discomfort, but after two hours did not offer any objection. With his new set of teeth, which are taken off every day and cleansed, the animal is able to enjoy his meals, eats meat and crunches bones without trouble, and in a month he has gained one and a half pounds in flesh.—(*Jour. Comp. Path. and Therap.*)

INTERESTING STATISTICS.—From statements published by the Minister of Agriculture in Italy, Prof. Müller has given in the

Archiv für Wissenschaftliche und praktische Thierheilkunde the following table, giving the number of veterinarians in each country, the extent of ground covered by each practitioner, the number of horses and of cattle which may be called to his care.

Countries.	Total number of veterinarians.	One veterinarian to square kilometres.	One veterinarian to number of horses	One veterinarian to number of cattle.
Belgium.....	475	60	570	2793
Bulgaria.....	48	2014	9038	36874
Denmark.....	475	81	864	3571
Germany.....	3516	153	1093	4993
France.....	3389	129	1028	3835
Greece.....	17	3830	—	—
Great Britain.....	2698	116	639	3290
Holland.....	437	75	623	3506
Italy.....	2561	112	622	1868
Luxemburg.....	23	112	719	3459
Norway.....	123	2620	1227	8153
Austria.....	957	312	1678	9032
Portugal.....	88	1058	2263	7931
Roumania.....	133	985	4517	18595
Russia (including Poland)...	853	5037	20961	28427
Russian Poland.....	72	1554	—	38188
Sweden.....	310	1422	1598	8013
Switzerland.....	571	71	182	2071
Servia.....	45	1080	3666	18394
Spain.....	3432	146	599	646
Hungary.....	732	444	2388	6655

Similar statistics made in the United States and in Canada would certainly show that again America is leading the world.

ANKYLOSIS OF THE FETLOCK JOINT [*By E. E. Martin*].—This mare, says the author, at the time of purchase had both fetlocks rather enlarged and round, her gait was stiff and became stiffer. Though she was blistered twice, she grew worse, became lame at a trot, but made rather a good canter. There was entire loss of power of flexion, which was very painful when made by force. The animal was chloroformed and forcible flexion applied, when noises of snapping of adhesions were readily heard. At first the mare was much benefited, but the improvement was only temporary. Plantar neurotomy was resorted to later on and considerable benefit obtained, most of the intense lameness disappearing. She did her ordinary work for some months and was ultimately destroyed. At post-mortem examination the lower portion of the metacarpal bones and the upper part of the os suffraginis were found to be thickly covered with ossific deposit, which extended upwards as far as the bulbs of the splint bones, which were also involved.

The articular surfaces of the joint were free from deposit.—
(*Jour. Comp. Path. and Ther.*)

PELVIC TUMOR IN A HORSE—OPERATION—DEATH.—In the *Veterinarian* Mr. W. N. Scott, M. R. C. V. S., records the case of a yearling which suffered with colic with violent efforts at defecation. Suspected of an intestinal obstruction due to calculi, rectal examination revealed the presence of a tumor on the superior face of the rectum, hard in consistency, as big as an apple and somewhat movable. Having considerably increased in size, its removal was decided upon. This was done by making a large incision on the upper wall of the rectum, and, after isolating the growth from its surrounding adhesions, it was made loose and taken off *en masse* with the ecraseur. Death took place on the third day, from peritonitis; that membrane having been injured during the operation. The tumor weighed 625 grammes and was of sarcomatous nature.

TREATING STIFLE LAMENESS.

To the Breeders' Gazette.—I have had sixty years' experience in raising and doctoring all kinds of stock, and I often see in the veterinary department recommendations that might be simplified greatly to the advantage of the owner as well as the animal. Take for instance in your issue of Dec. 29 that case of stifle. If a horse is stifled put a strap around the pastern with a ring attached; make a collar to go around the neck; fasten top of collar to a girth around the body so as to prevent slipping forward; pass rope between fore legs; get patella bone in place; attach rope to strap ring on pastern; draw the rope so as to hold leg a little forward of perpendicular and fasten. If necessary fasten rope to girth loosely to keep from being stepped on. Put the horse in box-stall without bedding and apply any good stimulating liniment to stifle and you will have no trouble after the ligaments have properly contracted.

McLean Co., Ill.

V. W. TOMPKINS.

Remarks.—The above plan is a good one and is recommended by the veterinary editor where necessary, but is not usually practiced unless there be complete accidental luxation of the patella, which is liable to recur almost immediately after reduction. It is not usually necessary to resort to confining the leg in a forward position in cases where there is a dropsical swelling of the stifle joint accompanied by a "snapping" of the patella. The latter class of cases tend to prove obstinate and

persistent. There is a possibility, however, that recovery would take place sooner were the rope and hobble used as suggested by our venerable correspondent.—*Veterinary Editor Gazette.*

OBITUARY.

DAVID P. FRAME, M.D.C.—We very much regret to announce the death of this sterling member of our profession, which took place at Kansas City, Mo., almost upon his arrival there to accept a position as a meat inspector under the Bureau of Animal Industry, from broncho-pneumonia. Only a few days previously we had received a pleasant letter from him announcing his intended change of residence and promising to contribute some original matter to the REVIEW during the spring and summer. It appears that the doctor had suffered somewhat from Bright's disease, and the excitement incident to his assumption of his new position, the winding up of his old business, etc., brought on the fatal attack. The taking off of this earnest man and conscientious veterinarian is especially sad, and we extend our respectful sympathy to his family and immediate friends. Dr. Frame graduated from the Chicago Veterinary College in 1894, was connected with the Health Department of the city of Colorado Springs, Secretary of the Colorado State Veterinary Medical Association, and a member of the U. S. V. M. A.

THEODORE BIRDSALL, D. V. S.—This well-known veterinarian died at his residence in New Rochelle, N. Y., the latter part of February. He graduated from the American in 1885, and for a number of years was a partner of Dr. S. K. Johnson in the conduct of a large city practice. Some six or seven years ago this partnership was dissolved, Dr. Birdsall retaining the office at 159 Crosby Street, and at New Rochelle, where he owned a country seat, and enjoyed a large practice in that locality. He was a member of the Veterinary Medical Association of New York County, which appointed a committee at its last meeting to draw up resolutions of regret at his demise.

HARRY O. DRISCOLL, D. V. S.—We learn of the death of this young veterinarian, which occurred in February from phthisis. He was sick with pneumonia, when a fire occurred in his residence, necessitating his hurried removal, which caused a relapse and precipitated acute tuberculosis. He graduated from the American in 1889.

BIBLIOGRAPHY.

OFFAL ESTABLISHMENTS (Clos d'Equarrissage). Industry, public and professional hygiene, sanitary police, legislation. By Dr. A. Morel, Sanitary Veterinarian. I vol. 8vo. With plates in the text. Published by Asselin & Houzeau, Paris.

The author has taken this subject for that of his thesis for the degree of M. D. After addressing thanks to the numerous professors of the faculty of medicine and of the hospitals at which he had followed the different teachings, and paying a respectful acknowledgment principally to a few of his masters, in a short introduction the author gives the definition of the *Clos d'Equarrissage* and of their importance to the point of view of salubrity and of their source of benefits to industry, trade and agriculture, alluding also to the great inconvenience that they offer to public hygiene and to the dangers run by those who are employed in them. The object of the work, says the author, "has been to bring out all that has appeared to us to be a cause of insalubrity in that industry and to indicate all the improvements that could be made into it."

The book is divided into five parts: 1st, the industry of the knacker; 2d, establishment to the point of view of public hygiene; 3d, to that of professional hygiene; 4th, sanitary police; 5th, legislation.

To have been able to do justice to the subject, it was necessary for him to know that kind of industry in its most minute details, so as to judge its defective points, objections, dangers; it was necessary to follow the work of knackers themselves, know of their habits, study their life. The author has seen all that, and obtained his documents from close observations in the best organized establishments; he speaks of what he has seen and observed, he had all the competency to judge and discuss.

Although the subject may seem at first strange to some veterinarians (possibly more so in America), in its relations to veterinary science; a more careful consideration of the subject will show that in the point of view of hygiene and sanitary science it is one which veterinary surgeons as well as physicians cannot ignore and the interest that it commands is of itself sufficient evidence of the value of the excellent thesis of Dr. Morel. All those that can read it will find in it abundance of important information, beside much sound advice as to the necessity of careful attention in making post-mortems of animals that have died of special contagious diseases.

SOCIETY MEETINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order at the Academy of Medicine, on March 2, at 8.45 P. M., with the President, Dr. Huidekoper, in the chair. The following members responded to roll-call: Drs. Ackerman, Burns, Bretherton, Bell, C. C. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Delaney, Dair, Ellis, Foy, Gill, Grenside, Huidekoper, Hanson, MacKellar, Neher, O'Shea and Ryder. (19) There were also present about forty members of the profession in Greater New York. The minutes of the previous meeting were read and approved.

Reports of various committees were received and accepted.

SPECIAL SUBJECT: MEAT AND MILK INSPECTION.

Dr. Gill took the initiative by reading a paper on "The Relation of Veterinarians to the Public Health as Meat and Milk Inspectors." He spoke as follows:

Disease frequently results from the consumption of unwholesome meat and milk. It becomes therefore a natural presumption that sanitary authorities should take such means as are necessary to prevent the sale of such food.

In this paper I wish to show the important relation of the veterinarian to the sanitary authorities as guardians of the public health and also to point out some of the necessary safeguards that should be placed upon the sale of animal foods.

I shall speak of milk first, as the greatest danger of the transmission of disease is from this source. Milk forms the principal diet of infants and invalids, and is generally consumed in its raw state, while meat is more or less cooked. By the inspection of milk one cannot determine the condition of the animal from which it was derived, therefore control and the inspection of cows, together with preventive restrictions against the contamination of their products become absolutely necessary. This is also true of meat inspection, for there are some conditions that affect the quality of the meat that cannot be detected after the animal is slaughtered.

Milk.—Milk is unfit for use as food under several conditions: (a)—When derived from animals in condition unfit to furnish milk, as certain physiological conditions like advanced pregnancy or calving period. (b)—When it contains some infectious matter. (c)—When adulterated. Adulteration may consist either in the addition of some substance to the milk, as water or coloring matter, the subtraction of some constituent like cream, or the addition of preservatives such as borax, etc. The determination of adulteration obviously lies within the domain of chemistry.

Let us turn to the various possible ways in which infection may be introduced. These ways may be summarized as follows: (1)—From the

animal supplying the milk. (2)—From the persons who handle the milk. (3)—From various substances that come in contact with or are introduced into the milk.

In how many ways the animal may be the source of infection, would require too long a time to describe, but tuberculosis and other constitutional diseases, local disease (external and internal) of the udder or teat, sufficiently suggest abundant causes of infection. These are causes which can be determined, we must admit, only by the veterinarian.

Of no less importance is the inspection and direction of the care which should be given the animals as regards their food and water, and as regards the ventilation and sanitary arrangements of the stables.

Of the sources of infection from the person, such as association with an infectious disease like diphtheria and scarlet fever, I will not speak more, but I would call to your attention the necessity of care in the entire milking process, the abundant opportunity for infection occurring then, and point out that so far as the process is one involving the handling of animals and their proper treatment, it is one which should also be directed by competent, that is, by veterinary advice.

Aside from the animal supplying and the person handling the milk great danger of infection arises from exposure, particularly while milking. Dust from hay, etc., manure and dirt thrown by the tail and hoofs of cows while fighting flies and mosquitoes, and many other conditions of the dairy go to make up the principal sources of milk contamination. This makes the maintenance of a separate milking room indispensable.

Meat.—The conditions requiring the exclusion of meat from market are numerous. Some of the most important are tuberculosis, meat infested with trichinæ and other parasites, hydatids, hog cholera, etc. Too often inspections have been made by persons who have not been trained to observe and exclude more than the most obvious diseased conditions and whose only ground for fitness seems to have been that they had been trained as butchers. That such inspection belongs to veterinary medicine I think no one will dispute, and it is of such magnitude and importance as to make necessary for its proper performance in large cities the establishment of a separate division in the Health Department to be under the supervision of a competent and experienced veterinarian.

The United States Department of Agriculture some years ago established a Bureau of Animal Industry, virtually a veterinary bureau; the chiefs and inspectors are required by law to be graduated veterinarians. Their most important duty is the inspection of all meat to be used for export. The law under which they act directs that meat for interstate trade shall also be inspected, but for want of a sufficiently large appropriation this is only done in some of the largest abattoirs. The carcasses when healthy are stamped or tagged, and those unfit for food are condemned. To-day nearly all of our Western beef bears the mark of a Government inspector, and naturally demands the highest price.

Local Inspection.—At our large city abattoirs meat inspection is in force, both governmental and local, but it is from the suburban or country slaughter-houses we must look for the most danger. At such places there is no inspection and the result is that a surprisingly large amount of diseased meat is shipped to our city, and purchased and consumed by

the poorer class of people who are compelled to buy cheap meat or go without. In this manner sickness and the death rate are materially increased.

To give you an idea of some of the common practices I will cite the following: A farmer has one or a number of sick cows that he fears may die, he therefore slaughters them and ships the meat to a New York commission merchant, who sells it for his account, or he may sell or trade the cattle to a drover, who follows the same course. Under the present conditions, New York offers an excellent market for the sale of such meat. No matter how perfect or rigid an inspection is carried on in our city, we can never guarantee the inhabitants pure and wholesome meat until the sanitary authorities exclude uninspected meat.

To better appreciate the relation and the duties of the veterinarian to the public health, I have prepared the following summary:

Milk Inspection.—This should include: 1.—The testing with tuberculin of all cows supplying milk to the city. This includes tagging for identification. 2.—The inspection of cows for other diseases or conditions that might render the milk unfit for use. 3.—The examination of water used for drinking and for cleansing utensils. 4.—The inspection of food. 5.—The inspection of stables. This includes arrangement of stalls, air space, ventilation, drainage, cleanliness, etc. 6.—The care of animals. This includes the grooming, exercising, care of hoofs, etc. 7.—The care of utensils used in milking. These should either be washed in boiling water containing soda or potash, or, better still, sterilized. 8.—Inspection of dairy employés. Particular attention should be paid as to the cleanliness of the hands and clothes of attendants and they should not under any circumstance be employed if they have been in contact with or themselves have any infectious or contagious disease. 9.—The care and handling of milk. Milk should not be exposed and while cooling should be covered with a layer of cotton between two pieces of wire gauze, this will allow evaporation, and prevent infection. All milk bottles should be sterilized, and should be filled and sealed under antiseptic precautions.

Inspection of animals within the city limits.—This includes—*A*—The physical examination of all animals for contagious and infectious diseases, many of which may be transmitted to human beings. The most dangerous of these are the following: *In cattle*—tuberculosis. *In horses and mules*—glanders and farcy. *In swine*—cholera and trichinosis. *In sheep*—anthrax. *In dogs*—hydrophobia. *B*—The testing of cattle with tuberculin for the detection of tuberculosis. This includes the tagging for identification. *C*—The testing of horses and mules with mallein for the detection of glanders and farcy. *D*—The examination of meat-producing animals at slaughter-houses before they are killed. This is important because there are some conditions as fever, fatigue, exhaustion, starvation, and excitement, affecting the quality of the meat that cannot be detected after the animal has been slaughtered. *E*—The inspection of animals entering the city stock yards, freight and express depots, boat landings, and slaughter-houses. *F*—The transportation of animals. This includes driving or carting animals through the city; disinfection of trucks, etc.

Inspection of meat.—This includes the inspection of the meat of animals killed. *A*—Outside of the city limits. *B*—At slaughter-houses.

C—In butcher shops. All animals and carcasses inspected should be stamped or tagged. Meat unfit for food should be destroyed.

No meat should be allowed to enter the city unless it bears the stamp or tag of a Government inspector, or a certificate from a reputable veterinarian, stating, under oath, that he inspected the animals and that he found no evidence of disease before or after death.

The shipper must notify the Health Department stating when and how shipped, so that the meat can be again inspected and tagged or stamped at the terminal express or freight office before being put on the market.

It would then be unlawful for any butcher to sell meat that does not bear the stamp of a meat inspector.

Supervision of Slaughtering and Handling the Dressed Meat.—A—To see that this is carried out in a cleanly manner and that the meat is not contaminated by carelessness and filthy surroundings.

Veterinary Supervision of Animals Owned by the Health Department.—A—Working horses (inspectors, ambulances, disinfection, etc.). B—Examination, care and autopsy of calves and heifers used in the production of vaccine virus. C—Veterinary examination, care and autopsy of animals used for the production of antitoxic serums. This includes examination and purchase of horses, injecting toxins, surgical and medical treatment after injecting, and the bleeding of the same.

Inspection and autopsy of dead animals.

Disposition of carcasses of animals dying from contagious diseases.—A—Inspection of dead animals at dock to determine prevalence and location of disease. B—Inspection of dead animals in street. C—Inspection of hides. *Disinfection of stables.*

At the conclusion of Dr. Gill's paper the President called upon Dr. Austin Peters, Chairman of the Massachusetts Cattle Commission, who said :

It gives me pleasure this evening to listen to Dr. Gill's paper and to note what he says about meat and milk inspection. I think his ideas are all right, but at the same time I think that there will be a great deal of difficulty in carrying them all out.

Five years ago last fall the New York State Board of Health became very much interested in the inspection of cows' milk and the possible danger to human beings of tuberculosis. In 1892 they had a bill passed which appropriated \$5000, to inspect dairy cattle in New York City. The infected cattle were destroyed and the owner could claim the cost from the State. I was appointed Chief Inspector, together with Dr. Cooper Curtice, and Dr. Gilbert, of Long Island. We inspected the animals of Westchester and Orange counties, about 10,000 in each county, and nearly all in Long Island City ; we gave each cow a physical examination, and the result was that the claims to be paid amounted to \$20,000. This scared them so that they appointed a commission, and they have not done very much since in that line.

In Massachusetts we have a law appointing an inspector of animals in every city and town in the State. It is his duty to inspect the animals in slaughter-houses in the different cities and towns of Massachusetts, also to go around among the stables and examine the cattle. We have no State Veterinarian and the work of dairy inspection is in the hands of the State Board of Cattle Commissioners. They inspect once a year, and the result has been that the last two years the Cattle

Commission had \$300,000 to spend, and last year \$250,000, and this year there is a very strong feeling of economy in this State, and they are going to try to have only \$150,000. We killed about 5400 head of cattle last year under the tuberculin test; we had about 10,000 returned as suspicious. Of these there were about 4000 found to be healthy, and about 5400 were quarantined. This saved \$185,000. If an animal is quarantined by an inspector under suspicion, we send an agent of the Board to examine the animal, who as a rule tests them with tuberculin, and if condemned the owner is allowed an amount not to exceed \$60. The law says that any animal that is diseased is unfit for human food, and it says that tuberculosis is a disease that is dangerous to the human family, but it seems to me tuberculin is an extravagant way to work on. There are a lot infected in the mediastinal glands which are killed and used for fertilizer. The law is now changed so that we do not pay over \$30, but it is uncertain whether this limit as to value will continue, as there are a great many cases where people are keeping cows to put them in quarantine so as to sell them to the State and get the price allowed. I think that where a cow is condemned there should be a system whereby the carcass could be used as a fertilizer and the money received for it be returned to the owner. I think that in all our States the rules for meat inspection should be made to conform with the U. S. Bureau of Animal Industry. They have meat inspection under certain rules throughout the country. If the animal has a slight localized lesion it is passed; if it is generalized, the carcass is thrown away. I think that as far as public health goes we have to look at it from two standpoints. First, the possible danger from cows that are tuberculous, the other, that it is a contagious disease. I think that if we killed badly diseased animals on physical examination, those which have tuberculous udders for instance, it would be cheaper. A cow may have actinomycosis or inflammation of the udder, and she will produce germs which are parasitic in character, which of course are injurious to the milk. It is very necessary that the conditions under which milk is produced should be known. For that reason I think that a fixed method of dairy inspection is very important.

For the past year Dr. Theobald Smith has been doing a good deal of work in this line. He says there is a difference between bovine tuberculosis and human. It is found that the bacillus from human is more slender than that of cattle, which is thick and harder to cultivate. When human bacillus is injected between the ribs it produces a slight localized lesion or small abscesses, whereas the bovine germ injected in the same way has produced in two weeks or a few months generalized tuberculosis. Some counteract quicker than others.

As a great deal of milk comes from outside of the State it is doubtful what the result of inspection would be; the only way would be to license each dairyman, who would have to have a certain standard to go by.

In dealing with contagious diseases and in using the tuberculin test we have to have the co-operation of the owner, for if he is careless about disinfection we cannot depend on him very much.

Then Dr. W. Horace Hoskins, of Philadelphia, was introduced, and spoke as follows:

The subject which is open for consideration and which has been so

well referred to by Dr. Gill, is of great importance. This subject is one that is pressing its importance upon the people of this country, and it is well that we who are so directly interested in this work should be foremost in consideration of all the measures that are destined to lead us out of the present unsatisfactory conditions, and especially these very important ones, meat and milk, in which we are very much interested, and which we by our education are so well fitted to solve the questions in a way that shall be satisfactory in a measure to all concerned.

The question of meat and milk inspection is probably the most important one that presents itself for consideration to the United States and the whole world, and it has fallen to you to bring this matter to the authorities of your State, especially of your city, in which, because of your ability and of your training, and as your duty as citizens as well as professional men, you should be interested. I was surprised in looking over some of the recent statistics to find that with her great animal industry that the great milk and meat question, which concerns one of the leading industries, that the authorities have not been able to find employment of more money to help solve some of these questions, and do her part of the work that is going to establish all over our country a thorough inspection, and not confine it to meat which goes abroad, for our own interest is greater than foreign, and of far more importance than the development of nations three thousand miles away. The New York statistics show that in seventeen years there has been less than twenty thousand dollars spent in the employment of veterinary services for the inspection of diseases incidental to livestock interest in the State of New York. She must look to the veterinary profession to lead in this work, and if New York State has found it necessary to spend so small an amount of money it is that she has not realized how great is the human responsibility. How far this subject relates to our profession is our duty to educate public opinion and public sentiment. The avenues of opinion are multiple in number. However, every citizen appreciates the dangers there are in the supply of milk, not alone from the animals but from conditions that are incidental to its delivery to the consumer, for it is known how susceptible the product of milk is, and therefore special care must be taken to prevent it from being contaminated.

We, as veterinarians, know particularly of the very great dangers there are. We know the different kinds of milk; we know of the bad sanitary conditions of stables; we know the care needed for animals; we know all the dangers of food, and how important they are for a good milk supply. We cannot obtain an ideal one at first, but that is something which is sure to come in time. I think it is a sad state of affairs if a city cannot place some value on its products and control the introduction of only good and wholesome products. It is certain the establishment of a system of meat and milk inspection is needed, and that we must lead in trying to formulate suggestions for this work. In Massachusetts and Pennsylvania this work has been going on, not as rapidly as we would like, but the agitation is being kept up. It is the purpose of this meeting to bring this very important subject to the attention of the people of New York.

Dr. Leonard Pearson, Dean of the Veterinary Department of the University of Pennsylvania, and State Veterinarian of

the Keystone State, being next called upon, addressed the meeting. He said:

This subject was under discussion at the U. S. V. M. A. meeting at Des Moines three years ago, and at that time there were some who advocated it, but one of the speakers doubted the efficiency of these sanitary measures, and of the power of veterinarians to control them.

In approaching this subject we must not do it as the man who was in danger and compelled to pray, and as he doubted the existence of a God, he said, "Oh! God, if there be one in heaven, if there is one, protect me if you have power." We do not want to go at this in that way. We want to know if there are dangers, how they can be avoided. Of course, there are some who will say that veterinarians recommend these measures because they will be employed, because they will receive money, and of course it may be that motives of that kind will be found, but there are other reasons, and because they are the best experts on these questions.

Meat inspection is nothing more nor less than applied comparative pathology, so that if meat inspection is to be efficient it must be carried out by those who have had some training in that line; this also applies to milk inspection. Is there any danger from the ingestion of milk from a tuberculous cow? Dr. Peters admits that there is danger from the consumption of milk from a tuberculous cow, and I have no doubt that Dr. Peters has seen a great many that prove to be excessively diseased who seemed to be healthy during life. It is an unquestionable truth that cows who appear to be well can produce bad milk. Cows' milk has been found that killed thirteen per cent. of guinea-pigs, showing that the active tubercle bacilli were there. Of course, whether they were numerous enough to infect a person, no one can tell, for no one will use milk of that character.

It is said by those who are informed on this subject that there is no case on record where it has been shown conclusively that tuberculosis has been conveyed by the use of milk. That is unquestionably true; there is no case on record where we are able to say positively, but at the same time we know that the germ of tuberculosis in the cow is the same as tuberculosis in man; we know that cows furnish milk containing large numbers of tubercle bacilli, and that in many cases people have tuberculosis in the intestinal tract. When a child from a healthy family contracts tuberculosis and dies, there is often a great deal of circumstantial evidence to uphold our theory, and men have been hung on circumstantial evidence no stronger than we have.

The experimental work that has been carried on in Massachusetts has gone to show that there is a slight physical difference between the tubercle bacilli of cattle and man. They also show that when these two are injected in cows, the bovine is more virulent than the human, and that the germs from the bovine will kill a man quicker than those from human. We do know that where a germ has been grown in a number of generations it acquires a higher degree of virulence than it has after it has been carried through a few generations. Germs from the bovine source injected into horses will kill quicker than from the human, and we all know that horses are not susceptible to tuberculosis.

We will never know that human beings contract tuberculosis from drinking milk until we are able to take a man and lock him up in a glass

cage, using strict antiseptic precautions, and feed him on suspected milk. At the same time we physicians and everybody believe that the dust in rooms that have been occupied by consumptives, and the dust on the street where they have expectorated is a means of spreading the disease, and the Board of Health believes that it is dangerous for consumptives to expectorate on the floors of public conveyances. We have not found a single case where an individual has contracted tuberculosis in that way.

So long as we recognize these dangers it is our duty to avoid them, and so long as persons die from tuberculosis it is a veterinarian's and human physician's duty to remove the causes, which means the prohibition of the sale of meat and milk which is not healthy.

You may think I am assuming too much when I say that you will have meat and milk inspection, and you may think so especially because I am not a member of Tammany Hall, but I repeat that you will have meat and milk inspection in this city carried out by veterinarians, and I say so because we can see this system now growing all over the world. It is a reform that is sure to come, and notwithstanding your experience here in New York, it is stated frequently that reforms never go backwards, and this is true of sanitary reforms to a greater extent than it is to political.

The value of meat inspection has been tested in the most advanced cities of Europe and it is growing each year more and more. This is not only true of Europe, but it is also true of the United States, for ten years ago there was not a veterinarian employed in this capacity, whereas now there are approximately about 150 veterinarians in the Federal Government. There are two in Pennsylvania, another soon to be appointed, and these three will be assisted by two or three laymen who will no doubt be replaced by veterinarians.

I have no doubt that it will reach New York City and that when it comes it will find the surroundings congenial, and before long New York will have a thorough meat inspection carried out by the only men who can do work of this kind, carried out by veterinarians.

Prof. R. W. Hickman, of the Bureau of Animal Industry, followed Dr. Pearson, in the following manner :

*Mr. President and Gentlemen :—*I have greatly enjoyed and been very much interested in the paper read by Dr. Gill, the essayist of the evening, and likewise in listening to the remarks of the gentlemen who have followed him.

I have a keen appreciation of the importance of the relation of veterinarians to the public health as inspectors of meat and milk, and while I shall not occupy any more time in speaking of the diseases and conditions which render these animal food products unfit for human food, I shall direct what I have to say more particularly to the subject, and to the two means by which the qualifications of meat and milk inspectors are acquired. The two means alluded to will be manifest as I proceed.

All things being equal, I think it will be admitted that the knowledge resulting from experience or contact with an object, especially if that object be a living creature, will be of a more practically valuable sort than if attained by promiscuous, general, or special reading. If this proposition is patent, so, likewise, must be the fact that the adaptability and the capabilities of the educated and trained veterinarian render his

relations to the public health, as an inspector of meat and milk—the chief articles of food of well-fed humanity—of infinitely closer and greater importance than is possible to members of our sister profession or any other class of individuals; for the veterinarian, by contact and training, is alone fitted as health mediator and judge of animal products for food consumption. (Not, by any means, however, for the reason advanced by the man who knew all about swine; namely, because he “was raised among them,” and yet, I would not for a moment depreciate the advantages of association.)

Having already strayed “from the sublime to the ridiculous,” let us allow our thought for a moment to dwell upon the æsthetic, and bring within our mental vision, using as an illustration, the Golden Rod in the early autumn. Thus, the mental attainment in medical science that is acquired through studious application to books may be compared to the bud. The after development, to the bloom, its fullness, of course, depending upon soil, environment, and the natural vigor of the plant, or, if you please, the talent and persistence of the individual.

The Golden Rod, as an illustration in point, occurred to my mind because of its being the national flower, and at the same time suggestive in name of the golden rule; for, next in value to the mental attainment of an inspector of animal food products, would closely follow his practical experience—the result of contact, handling and association. In fact, I believe it impossible to separate or differentiate the value of these two sources of education and development, since they must be so intimately related that either one without the other would fail to qualify an individual for the performance of the exceedingly important duties of inspector of meat and milk. The family physician gains his most valuable information through hospital and other practice upon subjects of his own race. By these means he learns to apply his knowledge, which knowledge, by association, experience and contact, becomes enhanced; but the very means of his development, and the nature of his professional duties debar him, disqualify him, for lines of practical work which must of necessity fit the veterinary physician and surgeon for the functions of his office, and the fulfilment of the obligations he has assumed in the interests of science and humanity.

Therefore, let the family physician, the agriculturist, the slaughterer and packer, the milk producer and vender, attend to his respective duties as such, leaving the determination of the fitness of animals and their products for food consumption to the veterinarian, who devotes his life, his abilities and his energies to the acquirement of such wisdom and the execution of such obligations as devolve upon him; which, because of evident circumstances and conditions, make him a true savant in questions of hygiene as pertaining to domesticated animals and their products, and their relative values, uses, and fitness for human food.

It is true that medical science (I use the term advisedly, for the greater number of its varied branches are true sciences) has made its advancement chiefly through experimentation upon the lower animals. It is probably equally true that both branches are advancing in equal ratio. The results of such experimentation, however, as applied to the veterinary branch of medicine, lead to knowledge that is more or less positive, while, as applied to the other branch, and the genus homo, it can be but relative.

I think it has been clearly shown that the work of meat and milk inspection belongs exclusively to the veterinarian, and likewise the importance of having qualified representative members of the profession in every State or municipal board of health. I am sorry that this claim is not more generally recognized, and that it is possible and pertinent for such editorial squibs to appear as I noticed in the Feb. 5th *Rural New Yorker*, i.e.: "The New York State Board of Health has been expending a little money in testing the dairy herds at State institutions. This serves to protect the inmates from diseased milk and sets a good example. . . . While we are thinking about the State Board of Health, it occurs to us that a veterinarian or two would not be out of place upon it. Very likely it may have to pass upon the fitness of men for herd testing, and physicians do not get such training in comparative medicine as would be useful in that event."

I believe it just, proper, and essential that the veterinary profession have representation in every scientific body, State, municipal, corporate, or otherwise, where the subject of the *relation* of the diseases of man and animals, or the fitness of animal products for human food is investigated and passed upon; and I believe that such bodies or associations of men will make more rapid advancement by such *accessions* to their organizations; and, finally, I am of the opinion that none but veterinarians should act in the capacity of inspectors of animals and their products, such as meat and milk.

Dr. W. Herbert Lowe, State Veterinarian of New Jersey, and late Veterinary Inspector of the Port of New York, was the next speaker. He said:

I have been very much interested in Dr. Gill's paper and so far as the other addresses went.

This subject of meat and milk inspection is certainly a very important one, and veterinarians have to go into it carefully, slowly, and of course thoroughly. People will have to be educated up to what veterinary science will do for them.

In speaking of meat and milk inspection most of the speakers dwelt on tuberculosis, but I think our laws in regard to the inspection of diseases of animals should be general, and applied to all the diseases that are communicable from the animal to mankind, and not to tuberculosis alone, but no doubt tuberculosis is the most important that we have at the present time. I think we all recollect when pleuro-pneumonia was so prevalent, and all investigations were directed in that direction.

Any of us that may have any influence in shaping what is to be done in that line know that we must have legislation, not directed towards tuberculosis, but all animal diseases.

I think no great results will be reached by destroying infected animals until we pay more attention to breeding, and to sanitary conditions. Carelessness in this line often produces the same disease or some other diseases, and we all know that the sounder the animal the better able it is to resist infection. It is well known, I think, that every man who drinks tuberculous milk and eats tuberculous meat does not contract tuberculosis. There is a great deal to accomplish in the line of breeding, which largely depends on more careful selection of the stock, for sometimes one infected bull will cause a great deal of harm.

In New Jersey we have labored under considerable disadvantage by reason of not having legislation. The State Board of Health has control over all diseases of animals, then we have the Dairy Commission, and we have a Tuberculosis Commission vested with full power to deal with tuberculosis; therefore if a man has a diseased animal he has to spend a good deal of time in finding out which one he has to consult.

A practical and experienced veterinarian should examine animals first, then the power of the other commissions could be applied. Not very long ago we had a typhoid epidemic in Paterson, N. J., and there were a great many deaths. The investigation traced it to a certain dairy in Sussex County, where it was found that they had what was called a walking case of typhoid fever. This milk was shipped to different parts of the State, and could not be traced by lack of facilities.

The discussion was closed by the essayist.

Under the head of new business it was moved and seconded that a committee of three be appointed to draw up resolutions on the death of Theodore Birdsall. Carried.

Moved by Dr. Bell, that a committee be appointed to draw up resolutions expressive of the feelings of this meeting in relation to the importance of meat and milk inspection to the health of the general public, and the necessity for the appointment of veterinarians by boards of health as such inspectors. Seconded. Carried.

Moved by Dr. O'Shea, that a vote of thanks be extended to Dr. Gill for his paper, and to Drs. Peters, Hoskins, Pearson, Hickman and Lowe for the discussion. Seconded. Carried.

Moved and seconded that the meeting adjourn. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary*.

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

The fifteenth annual session convened in the parlors of the Hotel Goodale, Columbus, Ohio, on Jan. 12, 1898.

The session was called to order by the President, Dr. E. H. Shepard, of Cleveland, at 7.45 P. M.

Roll-call showed the following members present: Drs. S. E. Bretz, Little Sandusky; J. H. Blattenburg, Lima; H. M. Ball, Columbus; T. B. Cotton, Mt. Vernon; L. W. Carl, Columbus; J. D. Fair, Berlin; W. H. Gribble, Elyria; T. B. Hillock, Columbus; S. H. Kent, Cadiz; W. A. Labron, Xenia; S. D. Meyers, Wilmington; J. A. Meagher, Glendale; W. J. Torrence, Cleveland; D. S. White, Columbus; Walter Shaw, Dayton.

As visitors we had Drs. W. C. Fair, Cleveland; J. V. Newton, Toledo; C. E. Leist, Columbus; H. D. Miller, Sunbury;

Benj. Schmidt, Wapakoneta ; J. E. Foster, Coschocton ; R. J. Michener, Lebanon ; C. B. Frederick, Louisville ; D. F. Lavery, Columbus ; J. G. Boyd, Columbus, and students of the Veterinary Department of the Ohio State University ; R. L. McClelland, Andover ; C. J. Morrow, Tiro ; Wm. Eddy, East Cleveland.

The minutes of the last meeting were read, and with slight change as regarded time of day, were approved.

The first order of business was the nomination and election of officers for 1898. Drs. Hillock and Torrence named Dr. Shaw for President ; no other nominations. Drs. Cotton and Shaw nominated Dr. Torrence for First Vice-President ; no other nominations. Drs. Bretz and Myers nominated Dr. Carl for Second Vice-President ; no other nominations. Drs. Gribble and Shaw nominated Dr. S. D. Meyer for Third Vice-President ; no other nominations. Drs. Shaw and Torrence nominated Dr. Gribble for Secretary, and Drs. Shaw and Cotton nominated Dr. Hillock for Treasurer.

For once in the history of the association there was no contest for any office ; so, upon motion, the rules were suspended and the Secretary instructed to cast the vote of the association for all nominees.

The Secretary cast fifteen votes, then the chair declared the following to be the duly elected officers : President, W. Shaw, V. S., Dayton ; First Vice-President, W. J. Torrence, V. S., Cleveland ; Second Vice-President, L. W. Carl, V. S., Columbus ; Third Vice-President, S. D. Meyers, V. S., Wilmington ; Secretary, W. H. Gribble, D. V. S., Elyria ; Treasurer, T. B. Hillock, V. S., Columbus. Dr. Hillock has held the office of Treasurer since January, 1890, and Dr. Gribble of Secretary since January, 1891.

Under the call "any new members to propose," the following were presented : J. E. Foster, V. S., Coschocton, O. (Ont., 1891), vouched for by Drs. L. W. Carl and W. E. Wight ; Benj. Schmidt, D. V. S., Wapakoneta, O. (N. Y., 1892), vouched for by Drs. S. E. Bretz, J. H. Blattenburg ; R. J. Michener, V. S., Lebanon, O. (Ont., 1885), vouches Drs. Walter Shaw and W. E. Wight. All credentials being satisfactory, and no objections being offered, the rules were suspended and the gentlemen all elected by acclamation. Each in turn thanked the association with that little cut-and-dried speech we all of us have used.

The remainder of the evening was used very beneficially in reporting interesting cases, one in particular by Dr. Shaw, where

a horse severed the jugular vein and partially the carotid artery, and the doctor after ligating the carotid on both sides of the injury completely severed it himself and the animal recovered. Dr. Carl reported a very interesting case, minutely describing symptoms, and asked the members for a diagnosis. Like all such cases, there was considerable disagreement.

At 10.30 P. M. the association adjourned to meet at 8 A. M. next morning; but hours after midnight the Secretary was hunting beds for some of the boys who had failed to provide themselves with such early in the evening. You know our meeting was during the senatorial tussle and Columbus was full of politicians.

Jan. 13, 1898.—Meeting called to order by President-elect Dr. W. Shaw at 9 A. M.

The chair appointed as a committee of three to audit the books of the Secretary and Treasurer Drs. W. E. Wight, W. J. Torrence and S. D. Myers.

The Committee on Contagious Diseases rendered verbal report, calling attention to actinomycosis, glanders, tuberculosis, etc.

Dr. Kent, of Cadiz, reported a case of tuberculosis in Jersey cow that he had destroyed, and exhibited remarkable specimens of the internal organs; showing how intensely they were involved; yet he had been called to treat the animal because of an abortion. The heart, lungs, mesentery were all studded with tubercular nodules. The case was extremely interesting, as none present had before seen the heart so diseased. The discussion that followed was taken part in by all.

The report of the special committee on veterinary law was rendered by Dr. W. E. Wight, and as usual, was the signal for diversified opinions and plenty of them.

No definite action was reached, so Dr. Fair moved and Dr. Carl seconded a motion to appoint a committee of two Columbus veterinarians to watch legislation during the present session of the legislature and if any law was presented to confer with the society's President, and act in the matter as they thought best for the interest of veterinarians, and for higher veterinary ability. Carried. The chair appointed Drs. T. B. Hillock and D. S. White.

The auditing committee rendered the following: "We, your committee appointed to audit the books of the Secretary and Treasurer, beg leave to report that they have performed that duty and found balance on hand last report \$276.44; receipts

for term, \$47.50; expenses, \$40.90, leaving a balance in the hands of the Treasurer of \$283.04—all bills of this session being paid. W. J. Torrence, S. D. Myers, W. E. Wight, Committee." Motion was made by Dr. Cotton supported by Dr. Carl that the report be accepted and committee discharged. Carried.

The chair appointed the following standing committees for the ensuing year: Veterinary Progress—Prof. David S. White, Dr. Benj. Schmidt, Dr. J. H. Blattenburg. Contagious Diseases—Dr. J. D. Fair, Dr. S. H. Kent, Dr. S. D. Myers.

Dr. W. E. Wight moved that we now proceed to name a meeting place for our semi-annual meeting and proposed Toledo during July. Dr. Fair supported the motion. The name of no other city being presented, Toledo was declared the choice of the association. There being no other business the association adjourned, after one of its pleasantest sessions, at which all had been pleased, yet not one subject had been reduced to writing.

WM. H. GRIBBLE, D.V.S., *Secretary*.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

The regular meeting of the Missouri Valley Veterinary Medical Association was held in the lecture hall of the Kansas City Veterinary College evening of Feb. 9th, 1898. The meeting was called to order by First Vice-President Dr. R. C. Moore. Members present, Drs. S. Stewart, B. F. Kaupp, R. P. Steddom, G. A. Johnson, G. C. Pritchard, E. E. H. Biart, J. B. Black, R. C. Moore, F. W. Hopkins, J. H. Cock, and W. A. Heck. Visiting members of the profession were Drs. W. R. Cooper, of Kansas City; S. T. Miller, of Shelby, Iowa, and about twenty of the college students.

The first business to come before the association was relative to members in arrears. Dr. Pritchard moved that all members who have been active members and who have moved too far away to attend the meetings, and have paid up their dues reasonably close, be elected honorary members; seconded and carried.

Dr. Stewart moved that all members who are in arrears two years, and who have never paid anything to the society, be suspended; seconded and carried.

It was moved that all members suspended for non-payment of dues may be reinstated on payment of dues to date of suspension; seconded and carried.

It was moved that a committee of three be appointed to draft resolutions to be sent to the U. S. Senators from Kansas and Missouri, urging the defeat of the anti-vivisection bill now pending before the Senate. Motion seconded and carried, and the following committee appointed: Drs. S. Stewart, G. C. Pritchard, and G. A. Johnson.

The first paper was by Dr. Pritchard, on "Mechanical Treatment of Lameness." The doctor was of the opinion, ten or twelve years ago, that Robert Bonner's theories of a balanced foot were wild and visionary; but practical experience had forced him to accept them, and is of the opinion that any veterinarian who will give study and thought to the matter in an unbiased manner will be convinced. After giving his theories on cause of spavin, wind puffs, and navicular disease, and the treatment of same by paring the feet, the paper was open for discussion. Dr. Johnson promptly took issue with the essayist, and a lively discussion followed for nearly an hour. Other members offered suggestions and asked questions until the subject was thoroughly turned over and looked at from many points of view. It was evident that Dr. Pritchard had given this particular subject more earnest study than any other member present.

The next paper, by Dr. E. E. H. Biart, on "Torsion or Displacement of the Large Colon in Protracted Colic," was very well received. It seemed to be a new idea to most of the veterinarians; consequently but few could discuss it. The doctor was deluged with questions, which he answered very satisfactorily. His method of diagnosis is manual examination per rectum, when by feeling for the longitudinal bands on the colon he is able to determine whether there is torsion or a normal position. If normal the bands run parallel with the abdomen. His method of replacement is by simply grasping the organ and by traction and plenty of patience bodily turn the organ. He gave as his opinion that a large percentage of fatal cases of colic is due to this cause. He had in past few months post-mortemed nineteen cases, and found torsion in six of them.

Dr. R. C. Moore gave an interesting talk on the methods of one — Giles, of this city, who is pushing a proprietary remedy with which he claims to cure all the diseases horse-flesh is heir to, and is interfering seriously with regular veterinary practice. He calls upon the owner of every sick animal of

which he can learn, and urges the merits of his lotion, and insists upon his giving it a trial.

An analysis of this remedy revealed its composition to be camphor five grains, sulphuric ether one and one-eighth drachms, and linseed oil enough to make one ounce. The doctor had prepared some of the lotion and had it on exhibition, and it was impossible to distinguish between this preparation and the original "Giles Lotion." Various means of dealing with this gentleman were discussed, and Dr. Moore concluded to furnish to his customers at cost all this preparation they might wish, and it is his opinion that a bottle such as is sold for one dollar he could compound for a few cents.

Dr. Stewart gave an account of a peculiar disease he calls "Contagious Vulvitis of Cattle." A large herd of heifers originally from near Trinidad, Colorado, was shipped to Kansas City, and sold in small bunches to farmers in various sections, where it seems they all developed the disease, which ran a very rapid course, and in case it was not treated terminated in death in about three weeks. None of the members had seen anything similar, but Dr. Pritchard had seen an affection of the vulva caused by feeding on old straw.

Several members had cases they wished to report, but the lateness of the hour prevented, and a motion to adjourn ended another very profitable meeting.

W. A. HECK, *Sec'y and Treas.*

CHICAGO VETERINARY SOCIETY.

The March meeting was called to order on the 10th by the President, Dr. Walker. Roll-call showed 15 members present.

On request of Dr. Walker, Dr. Merillat took the chair as acting chairman.

The minutes of the previous meeting were read by the Secretary. Exception to the same was taken by Dr. Walker as regards the last motion—an appeal from the chair. Motion by Dr. Campbell, seconded by Dr. Ryan, that the objectionable clause in the minutes of the previous meeting be excluded from such minutes. Voted and carried. No report from the Secretary.

The Treasurer reported \$8.08 in the treasury.

The committee appointed to draught resolutions of regret on Dr. James Henderson's resignation reported through their chairman the resolutions adopted. After the reading of the same it was moved by Dr. Merillat, and seconded by Dr. Richel, to accept same. Voted and carried. Moved and seconded, that Dr.

James Henderson be elected to honorary membership in the society. Carried.

Motion by Dr. Nelson, seconded by Dr. Ryan, that the rules be suspended and the reconsideration of the previous vote relative to the expulsion or retention of Drs. Pierce and McGraw be acted upon. Voted and carried. After some discussion it was moved and seconded to lay the reconsideration of the matter on the table. Voted and carried.

The second reading of the resolutions to change the quorum of the society for the transaction of business from 11 to 7 was read by the Secretary. Voted upon and carried. Under communications a letter was read from Dr. Albert Babb, Secretary of the Illinois State Veterinary Medical Association. Moved and seconded to notify Dr. Babb of the receipt of said letter. Voted and carried.

Dr. J. F. Ryan then read a paper entitled "Region of the Eye, as regards Examination for Soundness," as follows: The eye is the organ of vision, the physiological mechanism of the sense of sight; the perfection of anatomical arrangement of parts by which optical images may be formed, or means by which the faculty of vision is exercised. Hence the necessity of being most particular in passing criticism on this most important organ.

A horse with impaired vision may become a very dangerous animal; he may see things very imperfectly, distortedly, or does not see them until just upon them (such as man-hole covers in the street, etc.), from which he unexpectedly shies, with very varying results. And, again, on the other hand, a beautiful, full, clear, sound, intelligent eye enhances the appearance and value of the animal. A commonplace, dull, unsound, unintelligent eye detracts from beauty and depreciates his value from a greater to a very considerable extent as a consequence.

The following diseases of, injuries to, and abnormal conditions encountered in the eye and its appendages I consider unsound:

Opacities of the cornea, of all forms that are distinguishable on the corneal field.

Cataract, and diminished transparency, or any opacity of the crystalline lens or its capsule.

Palsy of optic nerve, amaurosis (amblyopia), from various causes: Anæmia from illness or hæmorrhage, lead poisoning, exposure to prolonged glare, as from snow blindness; tumors and other diseases of the brain implicating roots of the optic

nerve ; retinitis under pressure upon the retina from dropsical or inflammatory effusion, and also occurs from overloaded stomach. Unsound except where disease is symptomatic of some removable cause.

Periodic ophthalmia (recurrent ophthalmia, constitutional ophthalmia, moon-blindness, iridochoroiditis).—In any stage of its periodicity is absolutely unsound.

Loss of an eye (through injury, enucleation, rupture, etc.).

Absence of eyelid, torn off or removed in whole or in part.

Absence of membrana nictitans.

Fungoid growths of whatever character requiring excision.

Occluded duct, producing epiphora, requires surgical treatment and is an unsoundness.

Paralysis of lids (ptosis), partial or complete, is an unsoundness.

Strabismus of all varieties, causing faulty position of the eye, requiring division of the tendon of the contracting muscle.

Entropium or inversion of the eyelid.

Ectropium or eversion of an eyelid ; both these conditions require delicate surgical interference, and are unsound.

Vermicular ophthalmia, caused by *filaria papillosa*, requires removal and is an unsoundness.

Owing to the members agreement with the essayist that all the conditions were an unsoundness no special discussion took place, though great interest was shown in it by all present.

Moved by Dr. Hughes, seconded by Dr. Nelson, to close discussion. Voted and carried.

Under new business the resignations of Dr. E. L. Quitman and Dr. Frank Allen were presented to the society by the Secretary. Motion by Dr. Dubia, seconded by Dr. Campbell, not to accept these resignations. Amendment by Dr. Hughes, seconded by Dr. Richel, to defer action until the next regular meeting. Voted and carried.

Moved and seconded to adjourn.

L. CAMPBELL, D. V. S.,
First Vice-President and Secretary.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

The annual meeting of the Society of Veterinary Graduates was held at Madison in the rooms of the State Agricultural Society on Friday, February 25, 1898.

The meeting was called to order at 2 o'clock P. M. by the President, Dr. L. A. Wright. Roll-call : Drs. Clark, Leech,

Schmitt and Wright present. Visitors: Drs. Clute, Heer, Beattie and Smith. The Secretary's report was read and adopted. The Secretary reported correspondence with Dr. J. P. Laws, the Treasurer, who had removed from the State. The Secretary was unable to find the Treasurer's books to investigate the same. The report of the Secretary in regard to the Treasurer's accounts was adopted subject to inspection.

Dr. Clark presented the application of Dr. J. P. Laws for honorary membership. On motion, action on the application was postponed until the Treasurer's accounts were investigated.

Dr. G. Ed. Leech presented an application for honorary membership for Dr. C. H. Ormond, of Milwaukee. It was moved by Dr. Clark and seconded by Dr. Schmitt that the application be granted. Carried.

Dr. G. Ed. Leech reported that two members of the society, Drs. R. A. Higgins and Jno. T. Unertl, were holding offices, one as first vice-president and the other as treasurer of a live stock insurance company and were giving the said company free services. Dr. Leech gave a description of the plan of operation of said company and a detailed report of the business transacted by the company during the past year. It was moved and seconded that Drs. Jno. T. Unertl and R. A. Higgins be requested by the Secretary to show cause on or before the next regular meeting in August why they should not be expelled from membership for violation of Sec. 7 of the Code of Ethics.

The applications for membership of Dr. R. S. Heer, Plateville, and Dr. H. P. Clute, Marinette, were presented.

In the absence of the Censors the President appointed Drs. Schmitt, Leech and Clark to report on the applications. The committee reported favorably on the applications. The President cast a deciding vote and they were declared elected to membership.

Dr. Leech made a report in regard to the veterinary bill before the last session of the legislature. After discussion, the report was accepted and it was decided to present practically the same bill at the next session of the legislature.

Reading of Essays and Reports of Cases.—The President gave a short and instructive talk on the duties and future prospects of the veterinarian.

Dr. G. Ed. Leech read a very interesting paper on "Azoturia in the Dog,"* and reported several cases. Discussed by Drs. Clark, Beattie, Heer, Wright and Schmitt.

*Will be published in May REVIEW.

Dr. Wright reported an obstinate case of sweeny. Several interesting cases were reported and discussed.

The society then proceeded to the election of officers for the ensuing year, which resulted as follows: President, Dr. L. A. Wright, Columbus; Vice-President, Dr. J. F. Roub, Monroe; Secretary, Dr. W. G. Clark, Marinette; Treasurer, Dr. Chas. Schmitt, Dodgeville. Censors—Drs. R. S. Heer, Plateville; G. Ed. Leech, Milwaukee, and H. P. Clute, Marinette.

It was decided to hold the semi-annual meeting at Columbus in August, subject to the call of the Secretary. On motion the society adjourned.

W. G. CLARK, M. D. C., *Sec'y*.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

The meetings held during the month of February were very interesting and instructive. They differed from previous meetings in many respects.

Among the new members who joined the society were: Dr. Robert Formad, who was unanimously elected as honorary member, and Mr. Joseph Johnson, who was elected as a member of the society.

Mr. A. Cunningham, the ex-Treasurer of the society, made a report, and it was moved and seconded to accept the same and to extend a vote of thanks for the valuable service rendered the society.

Mr. Hoopes was appointed as a committee to inquire into the matter of the society certificates at Avil & Company.

Mr. Newcomer was appointed to see to the binding of the magazines in the library, which were presented to the society by Prof. J. W. Adams.

It was moved and seconded not to send out any inquiry sheets this year, but to let each member of the Senior Class have twelve of the inquiry sheets.

Next in order was a *Mock Trial*, in which Mr. Horner was supposed to have sold a horse to Mr. A. Cunningham for \$250. The purchaser claimed that the horse was not as represented, and brought suit against Mr. Horner for \$500 damages. The participants consisted of the following:

Judge of the court, Prof. L. Pearson; attorney for plaintiff, Dr. C. J. Marshall; attorney for the defense, Dr. W. H. Hoskins; examining veterinarian, Dr. W. G. Shaw; expert examining veterinarian, Prof. S. J. J. Harger; witnesses for plaintiff,

Messrs. Kirby, Hoopes and Cornman; witnesses for defense, Messrs. Chesley, Cheney and Nolan. The jury consisted of Messrs. Miller, Jones, Newcomer, Taylor, Land and Repp. The jury brought in a verdict of \$300 damages in favor of the plaintiff against Mr. Horner. After the trial the members adjourned to the assembly room, where a light lunch and smoker was awaiting them.

At the last meeting of the society Mr. Atwood Hoskins gave a very interesting talk on pigeons. He spoke of the characteristics of the different breeds. He had several specimens to show to the society, among which were the jacobin, tumbler, pouter, homing-carrier and fantail pigeons. Mr. Hoskins is one of the best and most extensive breeders of pigeons in this country, and undoubtedly is well versed on the subject, as was shown by the way he answered all questions which were put to him after his lecture. The short time that Mr. Hoskins was with the society was greatly appreciated, as it was suggested that he should give the society a talk at least once every year.

M. JACOB, *Secretary*.

ILLINOIS STATE VETERINARY M. ASSOCIATION.

The semi-annual meeting was held at Bloomington on Feb. 15. The meeting was called to order at 11 o'clock A. M., Dr. Welch, one of the Board of Censors (in the absence of the President and Vice-President), in the chair. On roll-call, the following members answered to their names: Drs. Alverson, S. S. Baker, Nattress, Pease, Sussler, Scott, Stringer, and Welch.

The following gentlemen were proposed for membership: Dr. J. D. Nighbert, of Pittsfield, vouched for by Drs. Alverson and Stringer; Dr. D. E. Baughman, Danvers, by Drs. Welch and Alverson; Dr. N. W. Kyle, by Drs. Babb and Baker.

Moved by Dr. Alverson, seconded by Dr. Stringer, that the gentlemen be unanimously elected to membership, and that the Secretary be instructed to cast the ballot to that effect. Carried.

On motion, meeting adjourned for dinner.

The meeting reconvened at 1.30 P. M., Dr. Babb, the President, in the chair.

Dr. Stringer read a paper on "Specific Medication," which elicited considerable discussion.

Dr. Sussler read a paper on "Treatment of Parturient Apoplexy," which was so radically new that a long discussion ensued. A case report on "Hydrops Amnii," from Dr. E. S. Fry,

was read by the Secretary. Dr. Alverson read a case report on "Dystokia," which was fully discussed.

Moved by Dr. Pease, seconded by Dr. Baker, that a vote of thanks be tendered the essayists. Carried.

Charges were preferred against Dr. E. L. Quitman by Drs. Nattress and Stringer, for violation of the code of ethics of the association in promiscuous advertising, and he was cited to appear at the next regular meeting to show cause why he should not be expelled therefrom. The resignations of Drs. Jas. Henderson and R. P. Steddom (they both having left the State) were received and accepted with regrets.

A communication was received from Dr. A. T. Peters, of Lincoln, Neb., inviting the association to attend the next meeting of the U. S. V. M. A., at Omaha, in a body. Moved by Dr. Stringer, seconded by Dr. Nattress that the invitation be accepted, and that the association attend the meeting. Carried.

Regrets were received from Drs. Wilson, Newly, and others at their inability to attend the meeting.

Moved by Dr. Pease, seconded by Dr. Nighbert, that the meeting adjourn, to meet in Chicago at the call of the President.

S. S. BAKER, *Sect'y.*

VETERINARY MEDICAL SOCIETY OF THE ONTARIO VETERINARY COLLEGE.

The last regular weekly meeting of the society for the present college year, was held March 11. During the college session 156 papers were read on various subjects of interest to the students. The discussions were exceedingly interesting and instructive, thus impressing many valuable points upon the minds of the students. The following is a list of the papers read during the past month:

Essays—T. J. Fletcher, "Rinderpest"; B. W. Groff, "Gid"; W. L. Adams, "Hernia"; E. T. Cunningham, "Actinomycosis"; T. Lambrechts, "Alois"; Hamlet Moore, "Incompatibility"; H. W. Stedman, "Rabies"; G. P. Hayter, "Heredit"; G. K. Cranston, "Cocaine"; C. Owens, "Anthrax"; A. D. McLachlin, "Azoturia"; T. Rowland, "Barium Chloride"; J. A. McDonald, "Shoeing"; W. E. Fairbanks, "Nux Vomica"; G. W. Higginson, "Lithotomy"; F. M. Hayward, "Ophthalmia"; J. P. Howland, "Chlorodyne"; E. B. Truitt, "Ovarectomy"; J. Short, "Creolin"; W. H. Corey, "To Class of '98."

Communications—A. H. Krull, "Punctured Wound"; S.

Caldbick, "Acute Indigestion"; D. S. Jones, "Fistula of Steno's Duct"; J. W. Rutledge, "Gunshot Wound"; A. P. Lubach, "Diarrhœa"; J. S. McIntyre, "Wisdom of Examining Foot"; J. P. Howland, "Œsophagotomy"; E. B. Truitt, "Tympanites"; J. Dixon, "Pectoral Injury"; C. Owens, "Strychnine Poisoning in Dog"; A. G. Van Tine, "Spasm of Diaphragm."

C. W. FISHER, *Secretary*.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

President Salmon has appointed the following committee on charter: Dr. W. Horace Hoskins (Chairman), Dr. T. Bent Cotton, Dr. A. W. Clement.

It has been definitely decided to make meat inspection the leading sanitary subject for discussion, the topic to be subdivided into sections. It may be possible to have this subject illustrated by a large number of pathological specimens, especially those pertaining to the more common diseases found in food animals. If this subject should be presented in this manner it will prove very attractive to every veterinarian interested in municipal meat inspection, both actual and prospective.

As a side attraction it has been suggested that a clinic representing some of the major surgical operations be performed by well-known surgeons. This course would add much to the interest of the meeting, and would demand the attention of every phase of membership.

Secretary Stewart writes that he will be able to furnish the names of a number of essayists in time for the May REVIEW.

We hear that the Committee of Arrangements have their programme of entertainment well under way, and that it will be very attractive.

NEWS AND ITEMS.

DR. DE WOLF, of the Bureau of Animal Industry, has been transferred from E. St. Louis to Chicago.

DR. HARRISON H. GEORGE, of Noblesville, Ind., has accepted a position as Assistant Meat Inspector at Kansas City.

DR. SALMON visited Kansas City on his return to Washington from Fort Worth.

DR. T. A. STUART, B. A. I. meat inspector, has been retransferred from Kansas City to Cleveland.

DR. ADAIR, who has been in the quarantine service station at Nogales, Arizona, has been transferred to abattoir work at Kansas City.

DRS. RICHARD BLANCHE and J. S. Buckley are recent appointees on the Government meat inspection force at Kansas City.

DR. F. W. CARNACHAN, who has been in practice for ten years at Cedar Rapids, Iowa, has been appointed as Assistant Meat Inspector and reported for duty at Kansas City.

DR. W. A. HECK, formerly B. A. I. meat inspector at Kansas City, has been transferred to St. Joseph, Mo., and placed in charge of a microscopic station.

DR. F. W. HOPKINS, who has been in the employ of the Bureau of Animal Industry in Kansas City two years, has been transferred to East St. Louis.

MICROSCOPIC STATIONS for the inspection of pork have recently been established by the Bureau of Animal Industry at East St. Louis, Ills., St. Joseph, Mo., and Cedar Rapids, Ia.

DR. T. L. RICE, of Harmony, Minn., has recently been appointed on the force of the Bureau of Animal Industry and assigned to the quarantine division.

DR. C. J. SIHLER has resigned his position with the Bureau of Animal Industry, and has formed a partnership with Dr. R. C. Moore, of Kansas City, Mo.

DR. R. P. STEDDOM has been transferred from the meat inspection division at Kansas City to the quarantine; he reported to Chief Dean on Feb. 1st.

DR. J. L. TYLER, of Chebanse, Ill., is about to remove to Jackson, Miss., where he will engage in the practice of human medicine.

FEBRUARY SHIPMENTS OF HORSES from the Chicago market to Europe amounted to 2934, while the total for the first two months of 1898 was 5434—which establishes a new record in this industry.

DISEASES OF THE CAT.—In the February *Veterinary Journal* (England) Henry Gray, M. R. C. V. S., contributes an interesting article on the above much-neglected subject, confining his remarks to the diseases of the skin and their treatment, with a consideration of the external parasites of cats.

MARK D. WILLIAMS, D. V. S., of Middleport, N. Y., was elected Secretary of the Niagara County Farmers' Club, at the Court House in Lockport, N. Y., at its twelfth annual election, Jan. 29, 1898. This is one of the most enterprising farmers' clubs in this State.

MAURICE O'CONNELL, D.V.S., of Holyoke, Mass., who has been a member of the Massachusetts Board of Cattle Commissioners almost from its creation, was appointed City Veterinarian of Holyoke on March 10. The position returns annual fees of from \$500 to \$600.

DR. R. H. HARRISON, who has been actively engaged in practice at Atchison, Kansas, for many years, has given up his practice and has accepted a Government position as Assistant Meat Inspector and assigned to duty at Milwaukee. Dr. John Wright, of Kansas City, has taken charge of Dr. Harrison's practice at Atchison.

EDMUND TATTERSALL, the head of the famous firm of Tattersall's, horse auctioneers, died in London, Eng., on March 5th. Since the time of King George IV. the horse market founded by Richard Tattersall, near Albert Gate, Hyde Park, London, has been the best known and most prominent mart among the English-speaking public. Edmund has been the head of the house for many years.

VETERINARY INSPECTION OF HORSES IN THE CHICAGO STOCK YARDS is in charge of Dr. B. A. Pierce, one of the Assistant State Veterinarians. An agreement has been reached between the Stock-Yards Company and the Chicago Horse Exchange, whereby the Illinois State Board of Live Stock Commissioners have supervision over horses stabled there as to glanders and other communicable diseases.

THE MASSACHUSETTS CATTLE COMMISSIONERS have secured a temporary appropriation from the Ways and Means Committee of the Legislature to continue their work, and expect to secure an additional \$130,000, which will be the amount asked for by the Commission. A spirit of retrenchment is pervading the Bay State, and the Board, appreciating the fact and the hopelessness of obtaining the previous year's \$250,000, thought discretion the better policy, and we are glad to hear that they will be successful.

KILLED HORSES TO PREVENT THEM FROM STARVING.—During the latter part of February and the first of March the snow in the mountains of Maine was unprecedented in depth.

At one point it was eight feet on the level, and all supplies were cut off from the lumber camps. For weeks the crews at the camps worked shovelling a road in order to get food and fodder for men and horses. The grain and hay at one camp gave out and the horses were fed upon flour. One firm killed forty head of horses rather than see them starve to death, and another killed ten. Old-time lumbermen say the amount of snow in the woods was more than ever known before.

AN IMPORTANT APPOINTMENT.—Dr. Charles Wardell Stiles, the zoologist of the Bureau of Animal Industry, has been selected as attaché to the American embassy at Berlin, and will remain indefinitely in Germany. Among other duties he will report upon the actual condition of American meats as they go to that country. The Secretary of Agriculture will exert every effort to have the service extended to include all the European nations. The appointment of Dr. Stiles is very important, in view of the negotiations now pending over the exclusion of our agricultural products by Germany, and his mission requires a very diversified knowledge. We are assured that no better selection could have been made.

TEXAS CATTLE RAISERS' CONVENTION.—There were between 5000 to 7000 visitors at Fort Worth the first part of March in attendance upon the annual convention of the Texas Cattle Raisers' Association. Dr. Victor A. Norgaard, chief of the division of pathology of the Bureau of Animal Industry, and Dr. D. E. Salmon, chief of the Bureau, were among the visitors, as were also Dr. Charles Gresswell, State Veterinarian of Colorado, and Mr. E. J. Temple, President of the Colorado Veterinary Sanitary Board. These gentlemen, with other interested parties, held an informal meeting and discussed means of putting into practice the method of dipping cattle to prevent fever and for the admission of cattle when so dipped into the States of Colorado and Kansas.

A NEW AID TO VETERINARIANS.—In the advertising pages of this month's REVIEW will be found the advertisement of an old and well-known stock food, but which is placed before the profession in a new light, and one which is apt to attract the favorable attention of practical veterinarians. Messrs. Atkins & Durbrow, the manufacturers, state that it is not a secret formula and are quite ready to give its composition to any member of the profession who desires the information. We were made acquainted with the formula some years ago, and the junior

editor of the REVIEW has been employing it in his practice for some time with most satisfactory results. Their announcement fully explains its therapeutical advantages and indications, and we trust it will prove as efficacious in the hands of the general practitioner as it has shown itself to be in ours.

A BANQUET OF HORSE MEAT.—The Kansas City *Sunday Journal* says that at the annual banquet of the Kansas City Veterinary College on March 5 horse meat was served to the faculty and students and some invited guests and, although the spread was elaborate, not a morsel of meat other than horse flesh was served, beginning with soup and ending with roast. It is said that the guests pronounced it luscious. Even our sedate Secretary of the U. S. V. M. A. smacked his lips and said he enjoyed it. The following was the menu: "Soup: Consomme à la Equine. Broncho Bouillon. Meats: Roast Sirloin of Stallion with Brown Gravy. Fried Filly à la Soubise. Old Mare Boiled, with Horseradish. Boiled Gelding à la Française. Vegetables. Pastry: (Thoroughbred) Pudding. Nuts: Horse chestnuts. Drinks: Ice Water. Hard Water. Soft Water. Well Water. Hydrant Water. Water. Coffee. Mares' Milk." It was voted to have a similar banquet annually.

VETERINARY HYPODERMIC TABLETS.—An important announcement in connection with this subject is made in the advertising department of this month's REVIEW, wherein the well-known house of the Buntin Drug Company, of Terre Haute, Ind., notifies the profession of material reductions in the prices of their standard and well-known veterinary hypodermic tablets. These concentrated preparations have gradually worked their way into professional popularity, and many practitioners employ them exclusively for conditions where they are indicated. Their convenience, uniformity of strength, and general reliability warrant their more extended employment, since the popular conception of therapeutics is to eliminate the non-essentials and to administer the active principles. The firm mentioned deserve well of the profession for their pioneer work in this direction, which was for a long time carried on in the belief that the merits of the preparations would eventually force a business in that line. We are pleased to learn from the house that their efforts are gradually meeting with the appreciation they deserve, and that the demand is upon an increasing scale. Some of the most commonly used of the alkaloids have been the subjects of the most sweeping reductions, and we are sure that the

efforts of the preparators will be adequately appreciated by American practitioners.

THE LIVER FLUKE IN THE HAWAIIAN ISLANDS.—Through the courtesy of Veterinary Inspector W. T. Monsarrat, of Honolulu, we are in possession of the report of the Board of Health of the Hawaiian republic, which includes that of the veterinary inspectors, Drs. Monsarrat and Shaw. These gentlemen are doing a grand work in dignifying the profession in that country, and are rapidly forcing a recognition of its merits by their intelligence and public-spirited demands for wise sanitary means. In a private letter from the former he says that he "is longing for the time when Uncle Sam will take Hawaii under his sheltering wing, so that he may become a member of that grand organization, the U. S. V. M. A." In perusing the veterinary department of the report we were struck by the diversified presence of the liver fluke among the bullocks slaughtered upon the group of Hawaiian Islands. For instance, on the island of Oahu there were slaughtered during the years 1896-97 6811 bullocks, which showed 1501 good livers and 5310 fluked livers; on the island of Hawaii, of 5319 inspected 5233 were good and 86 showed abscesses; on the island of Maui there were 162 fluked livers out of a total of 2575 inspected; on the island of Kauai, every liver examined was fluked, there being 56; on the island of Molokai, 60 were fluked out of the 181 killed; none were found among the 144 killed on the island of Niihau; and they were equally good in the 31 slaughtered on Lanai Island, but there were 6 abscessed livers in the 29 inspected on the island of Kahoolawe. From the above figures it will be noticed that on one island the percentage is very high, while in an adjoining one the cattle are free from it.

ASSISTANTSHIP WANTED.

A qualified veterinarian of fifteen years' experience, desires a position as assistant to city practitioner in the North or West. Address "SOUTHERN VETERINARIAN," care REVIEW.

FOR SALE.

A substantial and commodious brick veterinary infirmary, office and residence, centrally located in a thrifty city of 25,000, and surrounded by a very rich agricultural and breeding country.

The leading practice of the entire region has for fifteen years been and is still being conducted in this property.

It is offered at less than 60 per cent. of cost, with cash payment sufficient to insure sale, balance at low interest and as long time as may be asked.

An exceptional opportunity for an energetic, up-to-date man.

Address W. L. WILLIAMS, Cornell University, Ithaca, N. Y.

AMERICAN VETERINARY REVIEW.

MAY, 1898.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

ENTRANCE REQUIREMENTS REDUCED TO TWENTY-FOUR COUNTS IN NEW YORK STATE.

At a conference of representatives of the veterinary schools and the Board of Regents of the Empire State the situation was thoroughly discussed, and the absolute fatality of the present entrance requirements, coming as they did with such suddenness, was shown and acknowledged, we believe, by all present. In support of the high standard, it was maintained that all professional schools were seriously affected in their attendance upon the inauguration of such an event, but that the reaction was so much in their favor that their classes were augmented beyond their former dimensions. Such a state of affairs was predicted for the veterinary colleges, but when it was shown that the demoralization of their classes amounted to their extinction, the gravity of the situation became apparent to all, and, for the first time since the act became a law, some consideration for these old and honorable institutions was exhibited. The collegians were as unanimous and hearty in their demands for as high a standard as possible as the Regents' representatives; but they condemned in unmeasured terms the methods which were enforced by the statute to accomplish that object. They showed that no such precipitate action had been taken in the case of any other of the learned professions; that years of preparation were given them before the maximum counts were enforced, while this, the youngest and most helpless of any,

had been brought up with a sharp turn, crushing every representative except the one endowed by the State's bounty.

At the conclusion of the conference, it was understood that the Regents would ask for authority to postpone the enforcement of the 48-count requirement for a few years, and we are pleased to quote from a recent letter of Mr. James Russell Parsons, Jr., the following explanatory paragraphs :

REGENTS' OFFICE, ALBANY, N. Y., April 15, 1898.

Prof. Roscoe R. Bell, New York :

DEAR SIR.— . . . Inclosed please find new circular relative to requirements for admission to the study of the several professions. You will note the announcement that for matriculates before January 1, 1900, veterinary student certificates may be granted for two years of satisfactory high school work or its equivalent, or for 24 academic counts. As we are now permitted to accept partial equivalents, veterinary schools will be allowed to matriculate conditionally any student who can satisfy the Regents that he has had a satisfactory high school course of one full year, the condition of 12 academic counts to be made up before beginning the second annual course counted toward the degree.

The veterinary law states that candidates for veterinary degrees must have passed Regents' examinations equivalent to the minimum requirement for candidates for medical or dental degrees in this State. Now, turning to the medical law, we find that for matriculates before January 1, 1897, the requirement in Regents' examinations was 24 academic counts. Yesterday morning I was assured by Deputy Attorney-General Hasbrouck that we should be justified in ruling that veterinary schools might for the present matriculate candidates for degrees on the 24 academic count standard.

Very truly yours,

JAMES RUSSELL PARSONS, JR.

So that it is assured that students entering the New York veterinary colleges for the next two years may do so under the two-year high school standard, 12 counts of which must be possessed at the time of matriculation, and the remaining 12 before beginning the second session. For this material concession the schools should be thankful, and we trust they may be in position to accept the higher requirement at the close of the probationary period without that shock which the abrupt enforcement produced at the beginning of the last session.

The REVIEW stands for fair play. It championed the cause

of the private veterinary colleges because it believed they had been ignored and injured, and it takes some pride in the announcement of the action of the Regents, whom it congratulates upon their appreciation of the integrity of the Commonwealth towards its chartered institutions, and their material assistance to the efforts of veterinarians to raise their schools and their profession to the highest possible standard.

Having accomplished this much, the REVIEW admonishes the schools to use every effort to profit by the opportunity, to the end that they may reap that reward to which they are so justly entitled.

EUROPEAN CHRONICLES.

SEROTHERAPY.—The application of serotherapy is gradually spreading all over Europe. In England, in some parts of the Continent, tetanus now is very commonly treated with anti-tetanic serum, while in France it seems yet to be limited only to prevent its appearance. But it is not only for that disease that serotherapy is resorted to in veterinary medicine. Infectious pneumonia and purpura hæmorrhagica (anasarca) are also submitted to the same medication.

* * *

PURPURA.—In the United States a few practitioners have used injections of serum in the treatment of this affection, and some very interesting cases have been recorded by practitioners in the pages of our American journals. These cases, however, have been only a few,—and probably the treatment has not yet entered into the general practice of American veterinarians, because it is a new treatment, which in their estimation has not yet proved itself.

The relation of the observations made by MM. Mouilleron and Rossignol deserve on that account professional notice.

In a recent communication on which Mr. Cagny had to make a report, they presented very interesting statistics. First they gave the number of cases that were treated by what might be called some of the classical treatments (209 subjects) during

the ten years previous to the discovery of the application of serotherapy; and showed that out of these there had been 161 deaths—enormous fatality. In a second list, and as a comparison, they gave the number of cases treated by serotherapy as 62, with 51 recoveries and only 11 deaths. Satisfactory results, all in favor of the new treatment and certainly sufficient to encourage its introduction on a large scale.

The treatment as followed by the authors lasted between two and ten days—exceptionally in one case 21 days. The quantity of serum injected varied in several cases from 20 to 110 c.c.

In relation to the nature and the development of the disease, there is a point of peculiar importance which is also presented in the communication. It is this, that while purpura is not a contagious disease in the true sense of the word, experience seems to show that, as much as it is for tetanus, the too long sojourn of an animal in a locality already occupied by individuals diseased with purpura, may promote in him the appearance of the disease.

* * *

INFECTIOUS PNEUMONIA.—The application of serotherapy to this disease has been made with two objects in view, as prophylactic and curative. The preparation of the preventive serum of Prof. Lignieres has been and is now tested with results which are not sufficient to positively decide as to its value. Comparatively a new discovery, there are probably some things imperfect in its preparation and in its application, which demand further investigations and experiments, before its effects can be established with positive certainty. In this point the serum of Prof. Lignieres is passing through the same road as others which are now enjoying an undisputed reputation. Time will tell.

If the prophylactic application of serotherapy against infectious pneumonia remains yet a question to study, according to the experiments made by Drs. Della Noce and Giancola, recorded in the *Clinica Veterinaria*, its effects as a curative agent can no longer be ignored, and the results which they have ob-

tained by its use prove its superiority over all other forms of treatment. By subcutaneous injections of serum, varying in number from two to seven, say on an average of four a day, of 100 c.c., they have seldom failed to observe a rapid improvement in their general condition: "*if the colt presented a depressed condition, with dyspnoëic respiration, accelerated pulse, depression of the nervous system, comatous, staggering gait, with anorexia, one was surprised to observe the rapid improvement of the general condition and to notice after four injections the disparition of the loss of strength, of the loss of appetite and of the comatous state.*"

In a table comparing the results of their observations made in 374 cases, the benefits obtained by serotherapy over other forms of treatment leave no longer a doubt as to its efficacy. Of those 374 animals 97 were treated by injections of serum, 27 by tracheal iodo-iodurate injections (method of Levi) and 250 by mixed treatments. The results leave no doubt—95 recoveries, 2 deaths with serum treatment; 21 recoveries, 6 deaths with Levi's method; 217 recoveries, 33 deaths with the other forms—or a mortality of 2.06, 22.22, 13 1/2 according to classes.

* * *

INTESTINAL CALCULI.—The history of these foreign developments is well known and there remains but little, if anything, now to write on it. Their mode of growth, the starting point of their formation, the symptoms they give rise to and their peculiar location according to size in the intestinal tract, are familiar to all, and there is scarcely a veterinarian who has not met with them in his practice. It is true that often the diagnosis of their presence has not been made before death, and often also it has been only at the post-mortem that they have been discovered. And, yet, it seems that now and then some unusual case can be seen which in its entire relation differs from the general course, and to this class belongs one which I have heard related lately by M. Butel at the Société Centrale de Medecine Veterinaire.

The subject was a horse, whose age, made approximatively,

was about fifteen years. He was taken with abdominal pains, without the manifestations of intestinal obstructions, as he had and was passing fæces at the time. The animal was seen by M. Butel, who obtained this fact from making a rectal examination. After four or five hours of suffering without relief, the animal died, and the post-mortem revealed the presence of peritonitis, with partial laceration of the intestines and a large number of calculi. One, very enormous, was found at a short distance from the end of the large colon; as big as the head of a large-sized man, it weighed 5 kilograms (10 pounds), and measured 0.57 centimeters in diameter. Besides this, there were some 500 smaller calcareous masses, varying in size from that of a lentil to that of a five-franc piece (a silver dollar); a certain number of metallic pieces, partly covered with calcareous deposits, amongst which were five nails, five pieces of wire. To complete this singularity of the return of the number five in the record of this case, it is amusing to remark that the patient died on the fifth of the month, that five days before his attack he had travelled a distance of forty-five kilometers and that previous to his sickness he had eaten five or six litres of oats.

As remarked by the clever editor of one of the French veterinary periodicals, for this poor horse thirteen was not the ill-omened number—his was five.

However, with the large size of the principal stone, the case is certainly worthy of a place in the history of these affections by the enormous number of smaller calculi found, the fact that almost to the time of death the very large calculus had not interfered with the expulsions of fæcal matters, and that notwithstanding its very large dimensions, which must have required a very long time to reach the point where it was, the horse had enjoyed comparatively good health, with only occasional attack of mild colic.

* * *

ICE TREATMENT IN PNEUMONIA.—Shall I speak to the readers of the REVIEW of this new(?) treatment, recommended by M. Brun in a paper that he read recently at the Société

Centrale, and in which he claimed to have obtained some great successes and rapid recoveries, even in some very severe cases, principally by the application of packs of crushed ice on the sides of the chest? This is probably the treatment by the cold sheet, recommended by the Germans, I believe, in the treatment of pneumonia in man, and which was tried some years ago, and which M. Brun is trying to revive. Whether its value will be proved and its introduction in our therapeutics sanctioned remains yet in doubt; the number of cases upon which it has been tried is yet too small to justify it, and certainly at first thought its beneficial effects are difficult to understand.

* * *

COMPARATIVE PATHOLOGY—MEASLES.—While its contagion from man to man is a fact acknowledged and no longer discussed, its transmission to animals has not yet been established in a positive manner.

A French physician, Dr. A. Josias, in connection with Prof. Nocard, has recently carried out a number of experiments with the effect of deciding, or at least advancing, the question. The nasal cavities and the throat of pigs and monkeys were contaminated with mucosities from diseased children and subcutaneous injections of blood from those same children were made in the abdominal region of the subjects of experiment.

The results in pigs were all negative; those on the monkeys, however, were most instructive. Eight monkeys were experimented upon, three of them contracted measles, absolutely similar to that of children; five, on the contrary, remained refractory.

One of the monkeys took the disease by simple contagion, the others by inoculation.

These experiments are of great interest and were the subject of a special communication at the Academy of Medicine in Paris. They demonstrate positively that an animal can take measles; that monkeys are susceptible to it and that some species of that family are more liable than others.

A. L.

INCLUDED in the report of the Committee on Intelligence and Education of the Pennsylvania State Veterinary Medical Association, read at the annual meeting in March, occurs this paragraph: "Great opposition has been raised in New York State by the action of the State Examining Board in making the standard of entrance so high. We have been informed that no less than eight bills are before the Legislature at the present time for the purpose of having the standard lowered." As the above paragraph is so pregnant with misstatements, and so misrepresents the situation in this State, we feel that the facts should be stated to the profession. The State Examining Board has absolutely nothing to do with the entrance requirements; they examine candidates for license to practice only, the Board of Regents being the censor of the qualification of the students entering the colleges. While the committeeman has been informed of eight bills before the Legislature to reduce the high standard, the REVIEW knows of not one. While about that number of bills bearing upon the profession in one sense or another were presented at the last session, none had for their object the reduction of the counts required by the Regents. We are glad to say, however, that the force of argument and sound judgment has accomplished that important object, which is announced elsewhere in this issue.

WE are glad to announce that the threatened financial interference with the efficient work of the Pennsylvania State Live Stock Sanitary Board has been averted, and that its offices are being fulfilled as before. It would be a great crime against the health and wealth of the State should such narrow-minded politics prevail.

THE uncertainty of safety in American bottoms upon the high seas during the present war with Spain will not seriously interfere with the exportation of horses, as the vessels of neutral nations will be safe convoys of our live stock.

ORIGINAL ARTICLES.

CAUDAL MYOTOMY VS. CLITORIDOTOMY.

BY W. L. WILLIAMS, D. V. S., ITHACA, N. Y.

From the Surgical and Obstetric Clinic, New York State Veterinary College.

Various accounts appear in current veterinary literature, from time to time, of the successful treatment of vicious mares by the removal of the clitoris. It is well known that many, or in fact practically all, of these vicious mares, when kicking or balking, tend to concomitantly switch the tail violently, urinate repeatedly, open and close the vulva rapidly, projecting and withdrawing the clitoris, and in general showing signs which suggest undue sexual excitement.

Apparently regarding this female penis as the seat of important sexual functions, operators have removed it in lieu of castration, though it is known that such animals continue to menstruate and breed as if nothing had occurred, and yet it is claimed that its removal subdues or ameliorates the vice.

Being skeptical upon the question, two cases have entered the college clinic which may suggest a new view of the *modus operandi* of the removal of the clitoris, because in these two cases the viciousness was removed without recourse to genital surgery.

Case I.—A small, rugged, common-bred, aged mare, which had acquired the vice of gripping the reins with the tail, followed by kicking, urinating, etc., and running away, becoming wholly unmanageable, except by tying the tail securely to harness or thill.

The base of each depressor muscle was separately dissected out and cut away for a distance of five inches. The tail was dressed daily until healed, when it was found that the patient had lost her viciousness along with the gripping of the reins.

Case II.—A well-bred trotting mare, used for butcher's delivery, had contracted vicious habits, like the previous case,

and had finally become unmanageable after one year's annoyance and danger to the driver.

This animal would constantly try to kick whenever she could catch the rein or when the breeching would press against her in going down hill, the kicking being accompanied by switching of the tail and urination.

Placed upon the operating table she was treated the same as the previous animal by student L., and being released was immediately hitched to the wagon and has been kept daily at work without any suggestion of vice.

We have observed equally prompt subsidence of vice in geldings after this operation.

The technique of our operation is extremely simple: the animal being secured in the lateral recumbent position and the necessary antiseptic precautions taken, an elastic bandage is applied firmly from the apex upward to the base of the tail in order to render it bloodless, a tourniquet of pure gum tubing applied closely to the base of the tail, the compression bandage removed and the operation field rendered aseptic.

The tail being sharply flexed dorsally by an assistant, a linear incision is made over each depressor coccygeus muscle midway between the ischio-coccygeus and inferior border of levator coccygeus, beginning close against the tourniquet and extending for about five inches towards the apex of the tail, severing the skin and caudal aponeurosis, exposing the bare muscle. The latter is readily separated from its enveloping aponeurosis either with the blade or handle of the scalpel, the envelope being lifted from the muscle with a tenaculum or retractor. A small probe-pointed bistoury is next inserted at the base of the incision on either side of the muscle and the latter completely severed. The dissection is now completed by cutting away the vertebral attachments of the muscle down to the distal end of the initial incision, where it is excised in the same manner as at the base.

The prolongation of the ischio-coccygeus is left intact. The muscles removed, the cavities remaining are tamponaded with cotton or gauze of the form and size of the muscle removed,

sutures being omitted. The tampon may be aseptic, or, as we use it, antiseptic, being saturated with 1 to 1000 sublimate solution, a pad of cotton saturated in the same solution spread over the wounds and the tail firmly bandaged, the tourniquet being removed after the bandaging has been completed as well up to it as possible.

The removal of the tourniquet is the signal for rather profuse hæmorrhage, which quickly subsides. The hæmorrhage appearing so quickly serves to eliminate any irritation from the sublimate within the wound. The bandage is removed after 24 hours and fresh dressing applied and in 48 hours the bandage and tampon may be omitted and the wounds treated once or twice daily with antiseptics. By omitting the use of the crupper the animal can readily continue its work without interruption. Care being taken to make the two sections of equal length, the symmetry of the tail is not changed except it is carried somewhat higher. The preserved ischio-coccygeus serves to prevent any undue elevation of the tail.

As we know of no essential bond of sympathy between the tail and genitals we can scarcely assume that the myotomy has effected a cure through the medium of the reproductive system.

We are led to think it possible, if not probable, that the education given an animal, by securing it fixedly and performing a painful operation in a region about which it has been previously viciously irritable and is now powerless to evade or resent the pain, plays an important part in the eradication of the vice. If this be true, we should in these operations discard general or local anæsthesia entirely and secure the animal in the most immovable and helpless manner, yet safeguarded against physical injury, which is in our judgment best attained by use of the operating table.

Having attempted but the one operation we can not of course essay to compare the two, though we believe the caudal myotomy has a wider application, being available in geldings. At the same time it wholly removes the power of gripping the reins and renders the tail far more readily handled in every way.

Being bloodless, the operation is very easy and can be carried out perfectly by any one acquainted with the details and in location can be more readily kept aseptic than can the operation wound after the removal of the clitoris, though either is not important from the standpoint of infection. It is not intended to suggest that caudal myotomy can properly replace spaying in cases where the latter is indicated.

EVERSION OF THE UTERUS IN COWS.

BY H. P. KEELY, V. M. D., SCHWENKSVILLE, PA.

A Paper read before the Pennsylvania State V. M. Association, March 9, 1898.

In this paper I do not propose to bring before you anything new or startling, merely to review the causes, symptoms and treatment and to tell you what, in my experience, has given good results, knowing that if this paper is discussed I shall learn more than I am able to teach you.

Definition.—Eversion of the uterus may be defined as the turning inside out of the organ, a kind of hernia through the os uteri. It may be termed partial if it does not protude beyond the vulva, complete if it goes beyond the vulva to the exterior of the body, when it usually forms a large, longish tumor hanging down sometimes as low as the hocks and showing on its surface the cotyledons, and is usually then accompanied with prolapsus of the floor of the vagina.

Symptoms.—These are unmistakable. You find a large, longish-shaped tumor coming from between the lips of the vulva. On the surface you will find the cotyledons, and the presence of these makes the diagnosis complete. The floor of the vagina, when prolapsed, is smooth on its surface and forms more nearly a round or globular tumor and does not hang down as low. The inverted bladder can be recognized by finding the openings of the ureters and by having the base of the tumor much constricted and issuing from the opening of the urethra. The bag of waters before calving and the foetal envelopes after calving are not easily mistaken, although I have known it to happen

so. There is usually not much straining after the eversion is complete until you come to reduce it. The general symptoms, if any, depend on the length of time since the accident occurred and are those of pain and uneasiness.

Complications.—These usually arise from injuries, from neglecting the case by not sending for competent help in time or allowing ignorant and unskilled persons to attempt reduction. Or the animal may injure itself in the stable, or other cattle may tramp on it. They generally are lacerations, allowing the bladder and intestines to pass out. A case of this kind that I saw recently was in a cow not with calf. Before calving she had prolapsus of the vagina and after calving eversion of the uterus. These were treated and the cow did well, but was not bred again. About eight or nine months afterward she was found one morning in the stable with a prolapsed vagina, which was simply a mass of shreds, the bladder protruded, and about all the small intestines, it appeared to me, were out, hanging away below the hocks. My treatment for that case was to ask the farmer for his rifle and to shoot her.

Prognosis.—Depends upon the length of time elapsing between the occurrence of the accident and time of treatment and upon the condition of the animal. Most cases, if treated promptly, and in a cow of fairly good constitution, not too old nor debilitated, will make good recoveries. I have seen cows so weak that they were unable to rise for three or four days make good recoveries. It seems to be a prevalent idea among people that having once occurred it is apt to recur every time the cow has a calf. But experience does not bear this out, as cows will frequently, after such an accident, again become pregnant and calve all right without a repetition of this trouble.

Causes.—Pregnancy must be given a place as a cause, as it never happens except in breeding animals; in fact, can not happen except at time of labor or soon after, when the os is dilated. Difficult labor may cause it at times; but we, all of us, have at times used much force in extracting the foetus and had no eversion, and we know that it happens after the easiest de-

liveries. Sloping floors have been blamed, but it also occurs on floors that are level. Prolapsus of the vagina during pregnancy making traction on the uterus and straining its ligaments, has been urged as a cause, but we know that lots of cows have prolapsus of the vagina during pregnancy, but no eversion of the uterus. It appears that certain predisposing causes are necessary and then it requires but very little to excite an eversion. I believe that we must have a relaxed condition of the ligaments holding the uterus in place. This may be due to a general softness or looseness of the tissues caused probably by soft sloppy feeding. Given such a condition and it requires only a little turning in of the fundus or one of the cornua like the end of the finger of a glove and severe straining perhaps from constipation or excessive peristalsis or contractions in the womb itself, probably from drinking very cold water, and away it goes, gathering momentum as it goes, until everything is turned inside out. It is a practice among drovers and some farmers to give their cows all the cold water they want to drink immediately after calving to make them clean, and it often cleans them more thoroughly than they care for; of course, the owner will never admit anything of this kind.

Treatment.—Preliminary, reduction, retention.

Preliminary.—Very often we find our patient down, especially if any considerable time has elapsed since the accident occurred. If possible, get her on her feet, as it is much more convenient to work at the animal in this position and the uterus is better retained when once returned, as it goes in on a level or down-hill, instead of being all up-hill work, as it is when the cow is down. If impossible to get her on her feet we may try to raise the hind part by means of bundles of straw placed under the hips; but this will usually be found unsatisfactory and there is then nothing to do but to get down on your knees and go to work. Of course, to cleanse the organ of all foreign substances is the first step. If any of the foetal membranes are still adherent they can easily be removed. A good plan, if you have plenty of help, is to have two men, one on each side, to support

the uterus on a clean bag or cloth. If the cow is down slip a clean bag underneath the cow for the uterus to rest on. I always order a bucketful of right hot water, in which I put some permanganate of potash, with which I bathe the uterus, cleaning it and somewhat reducing the swelling and size. Fleming advises cold water, even pieces of ice, to be rubbed over it; but hot water has always given me good results. Having thoroughly cleansed the uterus we are ready for the next step.

Reduction.—If the everted mass is small it is an easy matter to return it. But if, as is usually the case, the whole of the uterus is turned out and the vagina also prolapsed and has been so for some time and has become swollen and tumefied, it is certainly no easy job. It is a work requiring lots of patience, considerable strength and a great deal of care lest we injure it by using too much force. Have your two men support the weight of the uterus on a cloth or bag while you start to work it in around the edges, a little at a time. Work in one side and hold that within the vulva while you work in a little on the other side, and, thus working from side to side, always being on your guard to hold what you have gained against the cows straining until you have it pretty well reduced, when you will feel it beginning to go easy. Now you can clap one hand on the remaining portion and shove it in. Having returned the uterus, it is necessary to follow it up with one hand and smooth out all the folds and get the cornua and all the parts to their proper places as nearly as possible. In case the uterus has been out for some time and has become much swollen you will find this difficult or impossible, more especially so if the cow is down. But I believe that upon whether this is done thoroughly or not will in a great measure depend your success. You will find your work greatly increased by the animal's straining and working against you. If you can devise means to overcome this straining you will find your work reduced by at least half. Among the methods used to overcome this are to pinch up the skin of the back; farmers sometimes pinching up a fold of the skin and placing an awl through it, a girth around the body or around

the chest. Some advise tracheotomy. It seems this method ought certainly to be effective, because with the opening in the trachea it is impossible for the cow to fix the epiglottis and hold her breath, and without doing this it is impossible for her to strain. I have had no personal experience with tracheotomy in these cases and I trust that those members who have will favor us with their experience.

Retention.—Having returned the uterus and smoothed out all the folds and everything in its natural place as nearly as possible, we must devise means for retaining the organ and preventing its being again everted. Among the various means used are pessaries, sutures, skewers and trusses. The best, I believe, is the pessary, though for the sake of convenience I generally use the sutures. The pessary is best in my opinion because it does more to hold the uterus and floor of the vagina to their natural places. The sutures, if properly applied, will not allow the uterus to be protruded to the exterior of the body; but they do not prevent the organ from everting itself and lodging a whole big mass in the posterior portion of the pelvic cavity. I have seen this happen several times, especially in cows too weak to get up. The same is true of skewers and trusses. The pessary of course is very difficult or almost impossible when the animal is down.

Pessary.—Fleming mentions and describes a number of different kinds of pessaries—the pad, ring, cup and ball, bottle and pig's bladder. Of these I have had experience with only the first or pad. It has always given me excellent results. It is a sort of home-made affair, and the materials for making it can generally be found on any farm. To make it, take a short fork, or spade-handle, those with a hand-hold are the most convenient, though this is not strictly necessary, and a hole may be bored to hold your rope, or any round piece of wood of proper thickness and length may be used. Saw it about eighteen inches; about four or six inches from one end cut a groove clear around to hold the string with which you tie the pad. Then make the pad on this end by wrapping it with rags or cloths until you

have a pad about the size of two fists, then tie securely with a string in the groove you have cut and it is ready for use. Before inserting it I always dip the pad in melted lard. Then insert it into the vagina as far as may be necessary. Now, to hold it in place, take a rope and knot the middle of it to the handle. Take an end up on each side of the tail, on the croup make a single loose knot, go forward along the back to the withers, make another knot, down on each side of the neck, knot again, back between the front legs, up on each side of the body, pass an end through the rope on each side of the back, go down and back through between the hind legs on each side of the udder and up to your starting place. Tighten your ropes and tie securely. This, I believe, to be the best method when the cow is able to stand for you to apply it. It makes no difference if she does go down afterwards. The other pessaries are applied in practically the same way and are no doubt good, but having never tried them I can say nothing about them.

Sutures.—These are of two kinds, labial and hip. Labial, when only the lips of the vulva are sutured, and hip when they are passed through the skin of the hips. My method of suturing is this: Start with a seton needle and stout piece of tape, take a hold in the thick skin of the hip on one side a little below the level of the superior commissure of the vulva, go across taking a deep hold through both lips of the vulva and on over again through the skin on the hip of the other side, then cross obliquely to the first side and repeat at about the level of the inferior third of the vulva. Then draw up and tie your two ends securely.

For these two methods, the only ones I ever used, I do not claim any originality. They were taught me by our worthy ex-President, Dr. Ridge.

Trusses.—About these and skewers I shall not have much to say, never having used them. But it seems to me that the pessary has the same advantage over these that it has over sutures; it maintains the parts in place while the trusses and sutures simply prevent the organ from being protruded to the

exterior of the body. Before leaving our subject we must never forget to order the cow so placed that she will stand or lie high behind and low in front.

After-Treatment.—This must be governed by the individual case and by meeting emergencies as they arise. Keep the cow standing high behind. Avoid constipation. Feed so as to keep the bowels open, give no very cold water, if there be fever treat accordingly, if there is straining you may give anodynes, but nothing that will constipate; *cannabis indica* may be given, its tendency to constipate is not great. We may put a tight girth around the body or chest. The pessary or suture may safely be left as long as deemed necessary, as they do not interfere with the natural functions—defecation and micturation.

Amputation.—About this method of treatment I shall have but little to say. I tried it once—result, dead cow. It happened when I was in that stage of my professional career when a man is ready to do or try anything that the owner will permit, just for the sake of the experience or to see how it will go anyhow. The owner came to me wanting to know whether I would not amputate a cow's uterus. He said he had replaced it and sewed her up several times, but it would not stay. I went with him and started in to exhibit my superior knowledge and skill. I ligated, as I thought, sufficiently tight, and started to amputate with the ecraseur. I probably cut too close to my ligature and it slipped, and perhaps I used the ecraseur too rapidly; but anyhow the blood came in the thickest stream I ever saw and the cow promptly died. Fortunately the man had the cow insured and felt as little inclined to talk about it as I did. I would not now, however, hesitate, with hope of more success, to amputate a uterus where I thought it was really indicated, where I was sure all other methods had failed or it had become gangrenous or much lacerated.

WHEN CUBA IS FREE, and peace is restored, all the devastated plantations will have to be stocked with American horses and mules, which will open up a lively trade for our breeders.

SPECIFIC MEDICATION.

BY N. J. STRINGER, D.V.S., EUREKA, ILLS.

A Paper read before the Illinois State Veterinary Medical Association, at Bloomington, February 16, 1898.

In the history of medical study the department of the practice of medicine is most difficult. The reasons are twofold :

First.—It is instruction without such means of illustrations as appeal to the senses—description of phenomena, which the student has not witnessed, and very frequently is unprepared to understand.

Second.—The impression that the practice of medicine is almost wholly empirical stands in the way of that careful study of therapeutics based upon pathology which gives a rational practice of medicine.

The great change which has taken place in the past ten years renders it necessary that much of the past be forgotten if we desire to profit by the advanced knowledge of the present.

The world has reached that stage when men refuse to be bound by the authority of precedent. We have arrived at that period in medicine when we can believe in the curative powers of nature. We also understand that the animal organism is so perfect in health that it adapts itself to all conditions, and all uses, renewing itself from day to day and from year to year, possessing the powers of resisting disease, of removing it and of restoration of structure and function. The power of influencing the system for good is limited and the old ideas of forcibly removing disease by medicines, as we would an intruder from our home, are most fallacious. That which we may do with advantage is to direct nature's efforts, and must be based upon a correct appreciation of life as manifested in the animal body. When we reflect that disease, when allowed to run its course without medicine, using only that care in nursing which would naturally suggest itself in such a condition, is followed by but a small percentage of mortality, we will be better able to appreciate the fallacy of the old and the advantage of the new.

Facts teach us to be careful in estimating the value of medicines in the cure of disease. If they are thoroughly appreciated we will cease to attribute life-saving properties to medicines and be more ready to study their real uses.

We must concede that all agents employed as medicines act either upon function or structure, and that this action to be curative must be opposed to the process of disease; if so, then their selection will depend, first, upon a correct knowledge of the opposition of remedies to that process. It is the law of the universe "that like causes always produce like effects," or "that like effects always flow from like causes"; therefore, if we can determine the opposition of a remedy to a process of disease in any given case we have determined it in all like cases; but it is necessary that we be able to determine the exact condition of the disease when we expect to obtain the same curative action from the remedy.

Specific medication, then, is the art of curing disease by means of applying directly to the expressions or symptoms, regardless of the name of the disease, such remedies as are known to oppose them or remove them. In describing this action to another it is necessary that we observe and group the indications and symptoms of disease, that we may know the exact idea of the pathological conditions to be opposed.

The skill required is in diagnosis and requires a thorough study of pathology. Many individuals of the medical fraternity do not have the right conception of our use of the term "specific." They think of a specific medicine as one that will cure all cases of a certain disease, according to our present nosology, as pneumonia, typhoid fever, scarlatina, dysentery, etc., in the human, and influenza, strangles, pneumonia, etc., in animals. Looking at the subject in this light and guided by his experience in the use of remedies, he would claim that there are no specifics. There *are* no specifics for disease as they are classified, for the reason that all diseases do not present the same pathological conditions in all cases, and consequently cannot be cured by the same remedy. We use the term "specific" with relation to well-

defined pathological conditions, and that certain well-determined deviations from the healthy state will always be corrected by certain specific medicines.

A disease, according to our present nosology may be formed of one or more distinct pathological changes bearing a relation to one another. We do not propose to reach all of these conditions by one remedy except in those cases in which one lesion is primary and the others are secondary, resulting from it. We use a remedy for each pathological feature, using the remedy for that first which is first in the chain of morbid action, and second, and so on.

As an example, we analyze a case of simple fever, and we find it to consist of a lesion of the circulation, of innervation, of the secretions, of the blood, and of nutrition; each of these is regarded as a distinct element of disease, and, to a certain extent, one depending upon the other, in the order named. A remedy that will rectify a lesion of circulation will frequently be sufficient to arrest the entire chain of morbid phenomena; or a remedy that will correct a lesion of the blood, this being primary, and the cause of various morbid processes, will be a specific for all, as when quinine arrests an intermittent or remittent fever.

In severer types of disease we find it necessary to use a remedy or remedies for each pathological condition. According to the ordinary use of the term specific, we employ a number of different agents, which are none the less specific, for they meet distinct conditions of the diseased action. We should know the direct influence of remedies upon the animal body, both in health and disease, that we use them singly or in simple combinations.

If one expects to obtain the advantages from specific medication, he must not associate it with indirect medication. If you use direct medication use it alone; if you use indirect medication use it alone. Success comes from one or the other alone. Success of direct medication comes from accurate and faultless diagnosis.

It is not sufficient in selecting a sedative to know that the

pulse is frequent. Frequency is but one element of the lesion, and we have to determine in addition the strength and weakness of the circulation and the conditions of the nervous system that control this function. Where there is strength with frequency veratrum viride is indicated. Feebleness with frequency calls for aconite. In excitation of the nervous system with strength and frequency gelsemium is indicated. Atony of the nervous system and tendency to stasis of blood calls for aconite and belladonna. For feeble impulse from the heart without capillary obstruction digitalis is indicated. To be a good therapist a man must be well versed in every department of medicine; be capable of observing and reasoning; he cannot practice with success unless he is both. "Dependence upon authority dwarfs the mind, obscures the senses, and forms an almost impassable barrier to individual observations."

For example, I will briefly mention a few cases:

Case I.—Grey mare, seven years old, weight about 1600. Saw case Sept. 10, 1897, 7 P. M., temperature 104° , pulse 70, respiration 25, moist painful cough, muscular soreness of whole body; she could hardly be made to move; pressure over respiratory organs caused much pain; owner said she had been getting worse for two days and had not eaten anything; drank some water. Gave bryonia sp. tr., $\bar{3}j$; aquæ, $\bar{3}viij$; tablespoonful every hour with orders to lengthen time between dose if she got better. I saw her next day, 11th, at 4 P. M.; found her eating, which I was informed she commenced to do at noon; very little cough, no soreness of muscles, pulse and temperature normal.

Case II.—Bay pony horse, six years old, weight 800. 9 A.M., pulse 76, temperature $104\frac{1}{2}^{\circ}$, respiration 40; had not eaten anything to speak of for 24 hours; extreme muscular soreness, painful cough. Gave bryonia every hour. He was in a perfectly normal condition at 4 P. M.

I would like to mention many other cases of different diseases, also injuries, lamenesses, etc., but I will just say that there are three classes of symptoms that we must study, to wit: Ob-

jective, subjective, and suggestive. In treating animals we must depend almost wholly upon the objective and suggestive, while the human physician relies greatly upon the subjective.

AZOTURIA IN THE DOG.

BY G. ED. LEECH, D. V. S., MILWAUKEE, WIS.

Read before the Wisconsin Association of Veterinary Graduates.

In looking over the list of the literature of my own and several other libraries I am unable to find anything that would give me any light on the subject. But I have always made my motto the word "forward," and with your co-operation and that of the profession in this, as well as other cases, we may be able to place the veterinary literature upon the plane to which it belongs. But it must be by persistent efforts and continual study and investigation that this can be accomplished, and those who fail in this will soon find themselves out of the race.

In taking up this subject it is not necessary for me to say to you that it is a disease characterized by tonic and clonic spasms of the pelvic and lumbar muscles, for you all know that it may also happen to the muscles of the pectorals as well. And in neither need I tell you that the urine voided need to be darkly colored and nitrogenous and of a high specific gravity, for you are well aware of the fact that it may also be albuminous and of a low specific gravity also, but generally having a more or less nitrogenous nature.

But in making up the etiology it is very important for me to say that the primary cause of the disease is dietetic, and as such is the case what animal is more liable to these errors than the trusted friend of man, the dog? And generally they are very much abused for want of exercise in the proper manner. I have found that nearly all of the owners of dogs err in the way of feeding; that is, they do not pay enough attention to the changing of food to suit the condition of the animal or their vocation, and on account of this abuse they are more liable to such an attack than most other animals.

Symptoms.—The symptoms of azoturia in the dog come on just as suddenly as in the other animals and without any warning or indication of the disease. They may be attacked in the house as well as when out exercising. One of the cases I have seen was taken suddenly in the house without any exercise and a complete loss of power of the right pelvic limb. The other one was taken suddenly while running along the street and a complete loss of power of both pelvic limbs and of the lumbar region and loins. There was little if any perspiration that I could learn, as I did not see them early enough to ascertain that point. The urine voided was in one case high-colored and nitrogenous and albumen slightly present, and in the other case highly albuminous, with a specific gravity of an average of 1170, pulse varying from 70 to 86 beats and generally weak. Yet while it may be weak one day, it may be strong the next. The temperature varies from 102° to 105° , and in fatal cases it will be even higher. The bowels are nearly always constipated, while the appetite is generally good. There is none of the extreme nervous excitement manifested in the dog that is to be seen in the horse. On the contrary, there is rather a general tendency towards being comatose.

Prognosis.—Unlike those in the horse, these cases in the dog are not generally of a fatal nature; they yield to the proper treatment very different from the horse. There is very little danger of their terminating fatally, as I have seen so far no tendency towards a general destruction of the tissues of the muscular system. In most case there is an atrophy of the pelvic muscles, either special or general, and there may be a loss of power for some time, which gradually returns with treatment.

Treatment.—The animal should be placed in a well ventilated room heated to a temperature of 65 to 70° , with a peat moss covering on the floor and access to plenty of pure fresh water. The first and most important line of treatment is to be directed to the excretory organs. Enemas should be given the first attention, after having administered a cathartic or purgative, and at intervals a mild non-irritating diuretic should be

given. If there should be any disposition towards atony of the pelvic or lumbar muscles, it is necessary to use only a stimulating embrocation and massage. The diet should be restricted for a few days to something of a very nutritious character and easily digested, with, perhaps, a gentle laxative, and if there is a general tendency towards weakness after a few days administer tonics. When convalescence begins moderate daily exercise is very essential. There is nothing that should fill the heart of every veterinarian with more pride than a very thorough and careful study of these cases and an abundant knowledge of the best methods of giving relief to the different species of man's most faithful friend.

TETANUS AS I HAVE FOUND IT IN CHESTER COUNTY, PA.

BY W. P. PHIPPS, V. M. D., KIRKWOOD, PA.

A Paper read before the annual meeting of the Pennsylvania State V. M. Association, at Philadelphia, March, 1898.

Tetanus is a spasmodic and continuous contraction of muscles, producing rigidity of the parts they supply, caused by the absorption of the products of a specific germ called the "tetanus bacillus." This organism is found in many soils, preferring those rich in potash, and multiplying only out of contact with the air, being anærobic; and growing best at temperatures of 95° F. to 100° F. It is a rod-shaped bacillus, thickened at one end and containing a spore. The spores are very resisting, requiring moist heat at 212° F. for five minutes to destroy them. The germ when in contact with an abraded surface, and the air becoming excluded, produces its tetanizing toxine.

Bruger has isolated four toxic ptomaine substances from cultivations of the so-called tetanus bacilli. (1) Tetanin, producing symptoms of tetanus; (2) tetatoxin, causing tumors, paralysis and convulsions; (3) muriate of toxine, producing tetanus and salivation; (4) spasmotoxin, prostrates quickly with chloric and tonic spasms.

The bacilli do not enter the blood, but remain in the tissue

near the wound; only their ptomaines are absorbed into the blood and act similar to strychnine, but fail to respond to like treatment.

Tetanus is usually produced from traumatism that admit the bacilli and of the character to exclude the air from the depth of the wound, as a puncture of the foot, flap operation in myotomy of the tail, kicking, castration, etc.

Horses and sheep are the most susceptible, dogs the nearest immune, probably on account of their adeptness in cleansing wounds. The disease may develop twelve days after the healing of a wound.

The idiopathic form of tetanus is that where there is no apparent abrasion, but may be from an internal lesion, as the virulent bacilli have been found in fresh fæces, and Jennings suggested that this form of the disease may be caused by or through the irritation produced by intestinal worms.

When the bacilli develop rapidly and their products are rapidly absorbed, the disease is acute in form and mortality is high, and *vice versa*.

As for the general symptoms of tetanus, they are so distinct to the practitioner that they leave not the shadow of a doubt in diagnoses. The prognoses in my limited experience have been grave; with the results personifying the prognoses.

This paper is written more in the hope to gain knowledge than in the expectation of imparting anything new; except in the citing of three representative cases, taken from a dozen or more in my brief experience with this disease.

Case No. 1 was a gray gelding that I had furnished palliative treatment to through an attack of influenza, with gratifying results, and the doctor had been dispensed with and the patient turned into a paddock during the daytime to recruit. One evening the owner noticed the horse lame in the near front, and research resulted in finding a penetrating nail, which was withdrawn with apparent relief. Four days later I was called and requested by the owner to cut the haw from over the sight, and thereby save the eye. He was much surprised when I ex-

plained that it was a case of tetanus, or lock-jaw, and as the horse was eating well, the owner doubted the diagnosis until the symptoms were pronounced. The case terminated fatally in the acute form.

Case No. 2.—Called by farmer to ten-year-old mule Feb. 10, 1897; twelve miles due north. I found animal with characteristic base-wide position and the extensors tense; croup and cervical muscles hard, with head extended and tail elevated, nostrils dilated, and anxious, nervous expression of countenance. Deglutition was impaired, although mastication was fairly good and he consumed hay and fodder. Temperature $101\frac{1}{2}^{\circ}$ F., pulse 48, full and strong, peristaltic movement apparently normal, but respiration labored and shallow from spasm of muscles used. Urination and defecation apparently normal in amount. Patient was in comfortable stall at end of stable, stood next to mate, and as there was not a box-stall available I permitted him to remain in his old position and cautioned owner to exclude light and surroundings that would tend to excite patient. Found wound on side of pole, size of silver dollar, with history of recent healing; I curetted the same, produced profuse bleeding, and left instructions to apply twice daily to the part with bristle brush Churchill's tincture of iodine, diluted with the plain tincture of iodine. I used concentrated medicines, as the fluid extracts of cannabis indica and belladonna, in small repeated doses, by syringe in mouth, well back; and in powder form I wrapped in tissue paper potassium iodide, alternated with small doses of calomel, adding salines to drinking water to help regulate the excretory organs. On account of the distance and finances involved, I saw the patient every third day. To the anxious inquiry of a fairly good nurse I replied, that if the patient progressed over the second week we might hope for a favorable termination.

I paid my fifth visit on the thirteenth day and the patient was going along quietly, appetite had flagged some, but still eating when encouraged by change of food, reclined less frequently, but had lain down during the night; fæces were hard

and scanty, but general tension of muscular system was more relaxed, with tail less erect, and I dared to hope for convalescence, but cautioned the owner that the enemy we were fighting was treacherous, and *he* must spare no patience to keep the mule quiet. On the sixteenth day I had expected to see my tetanus case, but received word that he was dead. On inquiry I learned that immediately after the termination of the second week the owner turned the mule into the yard, so as to better judge of the progress of his improvement, and the next morning he was found as most of the subjects of tetanus terminate. I was disheartened when defeated in apparent view of success.

Case No. 3 was a four-year-old gelding, fairly well bred. I told the owner "the truth, the whole truth, and nothing but the truth," as I had found it in this disease; that the old form of medical treatment was decidedly uncertain, and I advised the antitetanic serum treatment, which was promptly rejected on account of the price quoted. I cut the wound out in the foot that had been healed, according to the owner's statement, for two weeks, and advised the iodine treatment, covered by antiseptic poultices.

I ordered an easily digested diet and quartered him in a darkened box-stall to await developments. As the owner seemed very particular about expense I overlooked the case, but he came for me in a week and informed me how much he thought of the horse, which is generally the case. When the animal becomes critical and the owner fears loss by death they become more valuable in his opinion. On visiting patient found tonic contraction of muscular system, apparent profuse salivation, but able and persisting in eating, although lips and tongue were stiffened and mouth would open but slightly. Pulse, temperature and excretions were fairly good, but respiration was labored and he had been standing two days. I prescribed similar to case No. 2, and at the owner's earnest request sent for the antitetanic serum, which I administered the following day, it being the eighth since first called. I gave 40 cc. in three doses, six hours apart; injected hypodermically with antiseptic precau-

tions.* The patient grew perceptibly worse for thirty-six hours following the injection of the serum, after which the tensility of the muscular system gradually relaxed, and in three days after the crisis the horse had lain down. Serous infiltration of the dependent portions of the body and limbs responded to potassium nitrate and digitalis. In ten days withdrew all indicated treatment. The animal has made a perfect recovery. Was it the serum treatment? I think it was. Looking at it, not as a specific, but as an adjuvant to our resources to combat tetanus and especially as a preventive agent when so used.

TETANUS.

BY WALKER S. PHILLIPS, V. S., READING, PA.

Read before the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1898.

This terrible disease is of nervous origin. It generally follows some operation or severe injury, and also frequently occurs from the pricking of the sole by a nail. As this affliction produces a peculiar irritability of the nervous system, it is of great importance to have the patient removed to a remote or isolated place, and kept as quiet as possible. In my treatment of these cases I have very seldom administered purgatives, but have taken advantage of bran mash the first four to six days, to keep the bowels moving. During my thirty-eight years practice I can recall sixteen cases, traumatic and idiopathic, which fully recovered, and none of which I placed in slings.

Treatment.—Hypodermically, morphia, 3 grains, once daily. R.—Ext. belladonna, 8 drachms; laudanum, 4 ounces; chloroform, 4 ounces; alcohol, 2 ounces. Sig.—Given with syringe twice daily in one-half ounce doses.

This treatment I have often found to actually relax the muscles for a time, then again, would find them in the former rigid condition.

After the fourteenth or sixteenth day I generally consider

*The immunizing units were not given.

the patient out of danger, but I still continue with this treatment six or eight days. Then daily doses of vegetable tonics, with nux vomica and bromide of potassium, as there is in some cases a fear or nervousness for some time after.

Treated a gray, eight-year-old gelding some time ago. Thought it would recover. Found no wound nor external cause; died the eighth day, and examination after death proved an internal injury.

Several months ago was called upon to visit a black gelding, eight years old, and found a wound just inflicted by the shaft of the wagon penetrating the scapulo-ulnaris muscles to the depth of several inches. Kept the horse in a box-stall five or six days. Wound nearly healed; swelling subsided; the animal appeared all right, was hitched and driven six or eight miles. About three days afterward I was called in, as the owner said the horse appeared stiff; found him very nervous and excited; could scarcely approach him. Found all the symptoms of tetanus, with the exception of the membrana nictitans not covering the eye as in all cases, and the tongue protruding from the mouth, not swollen, but for one inch was perfectly dark. Upon gently pushing it back into the mouth, it would remain for some time. No other dark or purple spots found. The animal died in about thirty-eight hours.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

PERFORATING ULCER OF THE STOMACH AND FILARIA IMMITIS IN A DOG.*

By W. LINCOLN BELL, Brooklyn, N. Y.

While home for the Christmas vacation I was fortunate enough to see the above case, which I consider one of remarkable interest. The dog, a very valuable mastiff, was taken ill Dec. 20, in the morning, right after breakfast, until which time he had appeared in the best of health. Dr. R. R. Bell was

* Read before the Montreal Veterinary Medical Association.

called, found the dog in a state of collapse, and prognosed death in a few hours, administering diffusible stimulants, and warmly blanketing. The dog died that afternoon, and a post-mortem was held the following day at 2 P. M.

Upon opening the abdominal cavity the mesentery was found congested. A large quantity of bloody fluid with an admixture of the contents of the stomach was floating among the intestines. No other pathological condition was met with until we examined the stomach, where was found an ulcer, which had perforated the pyloric end, its appearance indicating that it must have existed for some time, as the edges had been chronically inflamed, through the different layers, until the serous coat was reached, which showed evidence of very recent rupture, and explained the sudden collapse. On opening the thorax everything appeared normal until the heart was examined. Externally the left heart appeared normal, while the right one was hypertrophied, and on opening the latter a bunch of threadworms (*filaria immitis*) was found in the auriculo-ventricular opening (about 20), some in the ventricle and pulmonary artery, about 50 in all. They were of all sizes, from two to thirteen inches long. Nothing was found in the left heart; both ventricles contained very little blood.

The remarkable features of this case are, that during the progress of the ulcer the dog showed no symptoms of gastric derangement; nor did the hematozoa produce any visible symptoms. As the dog was very valuable, a great pet, and watched very carefully, any symptom of ill-health would have been noticed at once.

PREMATURE DIAGNOSIS.

By FRANCIS ABELE, JR., V. S., Quincy, Mass.

The first day of last August I spayed four bitches. Three were own sisters, bull terriers. Two staid in this city, while the third went into a neighboring State. In operating I removed not only the ovaries but the major part of the horns of the uterus.

I have never known a bitch so spayed to wander off, or bear pups, but the owner of the dog which went out of this State came to me and said that his spayed bitch was with pups, was very large. A medical doctor had said so, and was willing to bet on it. He (the M. D.) would like to buy the beast, take her home and treat her. Of course I objected. I asked that the present owner still keep the animal and await developments.

They told me further that the bitch seemed in pain, and had a discharge from the vulva. I suspected a possible abscess in the womb or even a metritis, and recommended the use of a vaginal douche.

I was quite glad to find out since that the animal is doing well and no pups are coming. I should have said that this is now February, six months after spaying.

Now, suppose the owner had not had more confidence in the veterinary than in the M. D. and had destroyed or gotten rid of the bitch without a post-mortem.

Again, suppose he had sold it to the M. D. Would the latter not have felt a disagreeable sensation when bringing it back and saying, "here is your bitch, she has had no pups?"

From this I wish to draw two lessons, very simple: The first is: Don't make a diagnosis until you know what is the matter. The second is: Remember that other people know something too.

GASTRO-HYSTEROTOMY IN A PRIMIPAROUS TWO-YEAR-OLD COW.

By E. M. NIGHBERT, V. S., Mt. Sterling, Ill.

During my practice last summer I was called to Mr. H——'s farm to attend a case of difficult parturition. Patient was a well-bred black poll heifer, in high condition. She was unable to rise, suffering from partial paralysis, the result of twenty-four hours' labor. Upon examination I found complete occlusion of the os, and was unable to detect the presence of foetus. I made examination per rectum and could plainly feel the foetus and that it was alive. I then made diligent effort to make my way into the womb, but, finding the os of such a hard nature and enlarged, my efforts were in vain. I resorted to the "Cæsarean section." I turned patient on right side and secured both hind and front limbs with ropes. I then made a large incision in the left flank over the posterior portion of the rumen. The uterus was then in sight. I made incision through its walls and extracted a living fine bull calf. It did well and now goes by the name of "Cæsar."

The mother being paralyzed and greatly exhausted, I ordered her destroyed.

Autopsy.—Os was of a hard fibroid nature and about three inches thick and would almost creak under the knife—other organs normal.

Note.—This is the second case that has come under my notice, the first being a ewe.

REMOVAL OF THE PAROTID GLAND.

By C. R. WITTE, D. V. S., New Britain, Conn.

On Nov. 10, 1897, I was called to see a cow said by the owner to be suffering from sore throat. On examination I found the parotid gland very much enlarged, as were the surrounding tissues. Respiration was laborious, owing to pressure upon the larynx and pharynx; temperature normal. My diagnosis was that of parotiditis, but I very carefully looked for the presence of a foreign body, which I failed to find. After the usual treatment of hot fomentations, poultices and iodine injections, without success, I explored for pus, but failed to find it. After the lapse of some time, I decided upon extirpation of the gland. An incision was made through the skin and all the surrounding tissues were loosened by the finger and a blunt instrument, isolating the numerous blood vessels and nerves. The gland was then drawn external to the wound and removed, after which the cavity was cleansed of all shreds of tissue and washed with antiseptic solution, and the skin sutured. Examination of the gland showed numerous sulphur-like specks, and internally a cavity filled with pus and granulations. Since the specimen was placed in sodium chloride solution the specks have disappeared.

Was this a case of actinomycosis or was it of traumatic origin?

ENLARGED SPLEEN.

By JOHN G. SLEE, D. V. S., Brighton Abattoir, Boston, Mass.

There was brought to the abattoir to be rendered the cadaver of an aged gelding, about 15 hands, 1000 pounds, that had died the night before. There was no history of the case, except that he had worked for years on a milk delivery wagon. On post-mortem the spleen was found to be of very large size, weighing 54 pounds, color and consistency normal.

PRECOCITY IN A CALF.

By PAYSON SCHWIN, V. S., Elkhart, Ind.

Some days ago I was called to attend a case of difficult parturition in a Jersey heifer, one year old. At the age of three months while at pasture and still receiving nourishment from her dam, she was served and became pregnant by a grade Durham bull that was in the same pasture.

Before my arrival the owner made an unsuccessful attempt to deliver the calf by tying a cord around its lower jaw, and in so doing he completely severed about three inches of that mem-

ber. After my arrival I made an examination and found the head turned over the shoulder. After some difficulty I placed it in position for normal presentation and delivered it with some exertion. It still being alive, minus a portion of its lower jaw, we killed it immediately.

I should like to know if this is not an unprecedented occurrence. If any readers of the REVIEW can cite any parallel cases would be pleased to hear from them.

EXTRACTS FROM EXCHANGES.

FRENCH REVIEW.

COMMUNUTED FRACTURE OF THE PELVIS.—This case, recorded by Mr. Geoffroy Saint Hilaire, in the *Recueil de Médecine Veterinaire*, is that of a mule which after slipping on one hind leg while at work, was found a little lame in the evening. The next day the same accident occurred and she fell with the left hind leg carried in excessive abduction. She was unable to get up, and while she attempted to do so both hind legs were very much abducted. The animal was in great pain. A diagnosis of fracture of the pelvis was made and the suffering brute was destroyed. Beside the lesions of the ischio-pubic region, the following were found involving the pelvis: fracture of the rim of left cotyloid cavity; transversal section of the pubic symphysis between the two obturator foramen; double and symmetrical fracture of the pubis; double and symmetrical fracture of the ischium under the cotyloid angles, on a level with the narrow portion of the bone. The sacrum and the ilium were intact.

SECONDARY GLAUCOMA IN A DOG—CONGENITAL CATARACTS DISLOCATED IN THE ANTERIOR CHAMBER—INTIMATE ADHERENCE TO THE CORNEA—EXHAUSTION [By MM. C. Fromayet, M. D., and E. Nicolas, V. M.].—The family history shows that the father had been blind at one time, but afterwards recovered his sight. Up to three months old, the subject of this report had good sight; then it began to fail and now he is totally blind. In the right eye, the cornea is opaque, in the left it is transparent above, but below presents a round opacity, behind which the lens, affected with cataract, is seen between the iris and the cornea. The dog suffers with glaucoma following anterior dislocation of the lens. The brother of the dog presented the same cause of blindness at the same age (three

months). Both dogs had congenital cataracts evidently of hereditary origin. The patient of the authors was successfully operated upon—not, however, without some difficulties, due to adhesions contracted between the lens and the cornea. The fact of these adhesions and the evidence of heredity for congenital cataracts are the interesting points of this report.—(*Rec. de Med Vet.*)

OCULAR MANIFESTATIONS IN PURPURA COMPLICATING INFECTIOUS PNEUMONIA [*By MM. Ciattoni and J. Blin*].—During a mild epizooty of infectious pneumonia, this horse, four years old, had presented symptoms of a very slight attack, and after some two weeks was considered convalescent. Eight days later he has a relapse: his walk is painful, the hind legs are weak, the fetlocks swollen and painful, the mucous membranes are yellow, his fever is high, there are centres of hepatization in the lungs, appetite is still good. Placed under treatment his pulmonary troubles improved, but his locomotion is getting worse. One morning he shows great increase in the severity of his troubles: his forequarter seems to be the seat of general tetanism, the head is extended on the neck, his countenance shows great pain, he moves altogether as of one piece, falls down, and rises with difficulty. The temperature has dropped below normal. The respiration is jerky and painful. And there suddenly appear on the surface of the body, neck and abdomen, large subcutaneous tumors, characteristic of anasarca. The manifestations of the hæmorrhagic process on the left orbit are very peculiar; the ocular globe seems to be dislocated; the conjunctiva is swollen and in less than an hour resembles a thick purplish cord; the membrana nictitans, protruding in front of the eye, is œdematous and hangs on the nasal angle; the mass of the eye itself is protruding, pushed from the orbit by the pressure of the blood on its posterior face. The animal died. Lesions of infectious pneumonia and of purpura were found.—(*Jour. of Zootechnie.*)

TWO CASES OF TETANUS FOLLOWING AMPUTATION OF THE TAIL — ANTITETANIC SERUM [*By M. A. Norey*].—These two horses belong to the same pair, had been bought together and were both operated upon by the blacksmith, who, to amputate the tails, used the peculiar shaped knife that serves to pare the hoof, the butteris. The symptoms occurred in both horses 48 hours apart. They were put under the same treatment—chloral, bromide of potassium, quietness, etc. The horse that was affected first died the fourth day. The other on the second

day of his sickness was submitted to antitetanic serum, of which he received 10 c.c every day for six days. He recovered in 15 days.—(*Jour. de Zootechnie.*)

MYXOMATOUS TUMOR OF THE LEFT VENTRICLE OF A COW [*By Mr. V. Larrue*].—Called to see a cow which had been ailing for a few days, the author remarked that the digestive function is regular, nothing seems wrong in the respiratory apparatus, temperature normal, the beatings of the heart regular. After a few days the condition is somewhat altered and evidently more alarming. The appetite is gone, there is no rumination, the jugular veins are enormously distended. There is no venous pulse, beatings of the heart are weak and dull; pulse small and accelerated. Lungs healthy. Supposing a cardiac affection, whose nature is not established, the animal is placed under a treatment of digitalis powder. For a few days the cow seemed to improve, and then died. At the post-mortem the pericardium was found distended by an abundant exudate. The left ventricle contained, hanging to the cardiac wall, a tumor as big as a large pear, weighing about 200 grammes, which on microscopical examination proved to be a myxoma and not a lipoma, as it seemed to be at first by its appearance.—(*Progrès Vétérinaire.*)

BELGIAN REVIEW.

VENTRAL HERNIA [*By Prof. A. Degivé*].—In the January issue of the *Annales de Bruxelles* the learned director of the Veterinary School of Cureghem relates the history of two cases of this affection of great interest, one in a cow, the other in a mare, in which the dimensions of the hernial tumor were enormous in both animals, probably of similar causation and presenting about the same lesion, viz., extensive rupture of the abdominal muscles, the straight, the great and small oblique, and also of the prepubic tendon. In the cow, the tumor was enormous, reaching so near the ground that one of the teats of the udder had been stepped on by the animal and torn off. All the functions seemed to be perfectly normal, except of course the difficulties that the want of proper muscular contraction may bring to the function of defecation. The animal was pregnant of her sixth calf. The cause of this lesion could not be found out. As the time of her delivery was close at hand the animal was kept for a few days under observation. One morning she gave signs of laboring pains; she was delivered of a calf. It

was necessary to keep her lying down and on the back to facilitate the expulsion of the foetus. The cow died a few hours afterwards from infectious peritonitis. . . . In the mare, the tumor was better defined and the diagnosis, readily made by physical signs, was also justified by the results of the rectal examination. She had a colt some two months previous, but six weeks before she showed a little tumor in front of the mammae. After her delivery the tumor enlarged considerably. The mare was destroyed. At the post-mortem, a transversal section of the prepubic tendons and of the two straight muscles, a short distance in front of the pubis, was found.

PLASTIC LINITIS OR SCLEROSIS OF MUSCULAR COAT OF THE STOMACH IN DOGS.—Prof. Lienaux borrows this name from human medicine and applies it to a lesion which he has found at the post-mortem of a dog. The animal was brought to him with the history that for several months he had been suffering with diarrhœa, which had resisted all forms of treatment. The dog had a splendid appetite, but was losing flesh all the time. He passed his food entirely undigested. A careful examination of the abdomen permitted the detection of a hard, large and fixed tumor, in the lower half of the post diaphragmatic region. The dog was destroyed. The tumor proved to be the stomach; it seemed dilated, its consistency is firm, hard; it does not give to pressure, except here and there. Cut open, the mucuous membrane is smooth and thinned out, it adheres intimately to the muscular coat, which is considerably thickened, measuring on the great curvature 28 millimeters near the cardia, and 20 at the pylorus; along the small curvature, near the cardia, it measures 11 millimeters. The peritoneal coat is sound. By microscopical examination, the great increase of the fibrous tissue, and the minority of the muscular element, demonstrated that it was more a case of sclerosis than one of simple hypertrophy. The nature of the lesions were sufficient to explain the troubles of digestion presented by the animal; it is to be noted that symptoms of vomiting did not occur during the whole length of the disease.—(*Annales de Bruxelles.*)

GERMAN REVIEW.

By W. V. BIESER, D. V. S., New York City.

A CONTRIBUTION TO THE SO-CALLED BORNA'S DISEASE.—In a certain place during 1895-1896, five horses were stricken

with this disease. After a certain well (6 yards from the stable) furnishing the drinking water was closed no new cases appeared. Twenty-one sheep that drank from the well sickened and gave the same symptoms presented by the horses; 12 died and 9 were slaughtered. The disease finally died out. The author from the foregoing facts is inclined to assert the infectious nature of Borna's disease.—(*Berl. Thierärzt. Woch.*)

MULTIPLE ABSCESES IN THE HEART OF A COW.—A six-year-old cow giving no previous history of illness except that of foot-and-mouth disease, and regularly performing her work, was suddenly seized with such excessive dyspnœa that the owner, fearing a fatal outcome, had her slaughtered. *Autopsy.*—The heart was enlarged one half; at the apex a prominent fluctuating swelling appeared, which on incision gave vent to a discharge of putrid yellowish green pus; the wall of the abscess consisted of tough, leathery connective tissue $\frac{1}{2}$ cm. in thickness; the internal aspect of the abscess wall was rough and uneven and of a dark grey color; the pus sac extended deep into the muscular structure of the heart, in fact, nearly into the entire area of the left chamber of the heart; smaller abscesses of similar structure were found scattered through the muscular structure of the right heart, throughout the muscular partition separating the heart chambers, one of which abscesses, the size of a fist, spread itself upon the right auriculo-ventricular valve, thereby causing the stenosis, which in turn caused the dyspnœa aforesaid. With the exception of two similar abscesses the size of an apple in the left kidney, no other organic lesions appeared. It is probable that these were metastatic abscesses, the result of foot-and-mouth disease one year previous. They are common after this disease.—(*Berl. Thierärzt. Woch.*)

REVIEW OF BIOLOGY.

I. ACTION OF TANNIN UPON THE BACILLUS OF TUBERCULOSIS [*By Mr. M. J. Sabrazes*].—For the last few years there is a tendency to consider tannin as antituberculous; but the teachings of the therapeutic clinic are too difficult to interpret to decide on the value of this indication. Lately, however, experimental researches have been made, but their conclusions are not more positive. After a series of experiments the author has reached the following result: The association of solutions of tannin with the tuberculous bacillus *in vitro* and in the organisms of guinea-pigs, far from arresting the march of inoculated

tuberculosis, as claimed by a few, seems on the contrary to accelerate it. The bactericide action of tannin in *these conditions of inoculation is nil*. But these do not interfere, at least to this date, with the data of clinical observations nor some experimental facts of another order which speak in favor of the efficacy of tannin when administered through the digestive canal in tuberculous man and animals. Indeed, it is known that bodies, slightly bactericide, such as iodoform, are, however, very active against infection.—(*Soc. Biol., Dec. '97.*)

UPON SOME CARDIO-VASCULAR MODIFICATIONS PRODUCED BY MALLEINE IN GLANDEROUS ANIMALS [*By MM. J. Guinard and A. Rabieaux*].—In a previous note, the authors had already exposed the cardio-vascular effects of malleine in healthy animals. They have since made experiments to find out if there were any differences in the mode of reaction of glanderous individuals. They used in their experiments brute malleine which they obtained from Pasteur Institute. With the exceptions of some variations of less marked intensity in the effects and the secretory action, they have failed to find any essential differences in the cardio-vascular modifications by the malleinization of horses affected with glanders.—(*Soc. Biol., Dec., '97.*)

THERAPEUTIC REVIEW.

AGAINST UTERINE TETANIC CONTRACTIONS DURING LABOR—Professor Müller recommends: Tincture of iodine, 1 gramme; alcohol, 2 grammes. Five drops every half hour in tepid water.

OINTMENT FOR WOUNDS: Sozoiodol potassii, 10 parts; lard and vaseline, of each 15 parts.

FOR FISTULOUS TRACTS (*Georgiewski*).—Prophyrized iodoform, 20 grammes; balsam Peru, 4 grammes; white vaseline, 6 grammes; essence of menthe, 5 drops. Mix. External use. After washing the wound well, fill it with tents of gauze covered with this ointment and apply simple bandage.

SCOPOLAMINE ANTIDOTE FOR CHLOROFORM.—Prof. Fröhner recommends the subcutaneous injection of 0.1 decigramme of scopolamine in cases of threatened death by chloroform.

DR. WILFRED LELLMANN will read a paper before the May meeting of the Veterinary Medical Association of New York County on "Multiple Sclerosis of the Brain and Spinal Cord of a Dog."

BIBLIOGRAPHY.

THE CLINICAL DIAGNOSIS OF LAMENESS IN THE HORSE. By W. E. A. Wyman, V. S., Professor of Veterinary Science at Clemson A. and M. College, and Veterinarian to South Carolina Experiment Station. New York: W. R. Jenkins, Publisher, 851-853 Sixth Avenue

In discussing the science of veterinary medicine and surgery with a learned brother practitioner recently, the subject of lameness was introduced, and our friend, a man of large practical experience and profound observation, remarked that no man could study long enough nor hard enough, nor reason thorough enough, nor investigate far enough, to exhaust the interest or unravel the mysteries of the peculiar manifestations of lameness in horses.

In the daily life of the average practicing veterinarian, especially in cities, defects in locomotion form the largest part of his duties, and according to his skill as a diagnostician and his ability as a therapist, his reputation is made or undone. There can be little doubt, therefore, that a practical contribution to the scanty literature upon the specialty will be welcomed by those to whom it appeals. Professor Wyman has pursued every available source to bring facts and deductions to its consideration, and in a neat volume of 170 pages divides his subject into twenty-five chapters, as follows: Chapter 1, detection of the lame leg; 2, detection of the seat of lameness; 3, lameness in the fore leg; 4, lameness in the region of the shoulder; 5, lameness in the region of the elbow and fore arm; 6, lameness in the region of the knee; 7, lameness in the region of the metacarpus; 8, lameness in the phalangeal region; 9, lameness in the hind leg; 10, lameness in the gluteal region; 11, lameness in the region of the hip joint; 12, thrombosis of the posterior aorta and its branches; 13, peripheral nerve paralysis; 14, lameness in the region of the femero-tibial articulation; 15, lameness in the region of the tibia; 16, of the lock; 17, of the metatarsus; 18, following fracture of the vertebræ; 19, resulting from fractures of the pelvis; 20, hoof lameness; 21, diagnosis of hoof lameness; 22, lameness following acute superficial and parenchymatous inflammation of the podophyllous membrane; 23, following individual hoof disease; 24, resulting from different causes not described in the foregoing chapters; 25, diseases of the head of suspensory ligament.

The work is illustrated by 32 woodcuts, and may be obtained of the publisher for \$2.50.

VETERINARY OBSTETRICS, a Compendium for the use of Students and Practitioners. By W. H. Dalrymple, M. R. C. V. S. Consulting Veterinarian to the Baton Rouge (La.) Board of Health, etc., etc. New York: W. R. Jenkins, Publisher, 851-853 Sixth Avenue.

From the pen of Dr. Dalrymple comes this valuable aid to the study and practice of obstetrics, and, as much as we expected from one so qualified, the work is even more pleasing than was anticipated. The concentration of the important problems of the subject, the concise and clear manner in which the statements are made, the comprehensive arrangement of the material, and all other details, including the excellent illustrations and the work of the printer and binder, all combine to make the volume before us a valuable addition to the library of every practitioner and student of veterinary medicine. Fifteen chapters are employed, and they are divided as follows: Chapter 1, anatomy of the female organs concerned in generation and parturition; 2, physiology; 3, anomalies occurring in gestation; 4, some conditions incidental to pregnancy; 5, some accidents of pregnancy; 6, dystokia; 7, embryotomy; 8, monstrosities; 9, diseases of fœtus; 10, maternal dystokia; 11, some accidents following parturition; 12, some pathological conditions following parturition; 13, diseases of the mammary glands; 14, milk, its composition, etc.; 15, diseases and abnormalities of the young animal.

We shall be surprised if Dr. Dalrymple's book does not secure a wide circulation among the reading veterinarians of the country, but we are sorry to say that a great many of our large numbers do not delve very deeply into the precious truths that are so rapidly being placed before them. How they manage to intelligently apply themselves to the intricate questions which daily come before them is hard for those who are ever upon the search to understand. Veterinary associations are the avenues by which they may be led into the light of their shortcomings. First induce them to connect themselves with these organizations: the rest will follow.

PRACTICE OF EQUINE MEDICINE, A Manual for Students and Practitioners of Veterinary Medicine, arranged with Questions and Answers. By Harry D. Hanson, D. V. S., Associate Professor of Theory and Practice and Clinical Medicine in the American Veterinary College, New York.

The announcement is made elsewhere that the above entitled work is in press, and will be soon issued by the author. It will include the ætiology, symptomatology, diagnosis, and indications for treatment of the diseases of the horse, is to be well indexed, will contain many important definitions, sections on inflammation, physical diagnosis, etc.

We anticipate a valuable addition to equine pathology from our knowledge of the ability and experience of the author, who is in every way qualified for such an undertaking.

He announces also that the void which has so long existed in the absence of a treatise upon veterinary prescription writing is to be filled, as he has in preparation a small work upon this subject, which will include original prescriptions from the most prominent practitioners of the country.

VETERINARY OPHTHALMOSCOPY (*Précis d'ophthalmologie vétérinaire*). By T. Nicolas and C. Fromayet. 1 vol. 8vo. 200 pages. With 9 colored plates and 25 figures. Published by J. B. Baillière et fils, Paris.

The object of this work is to spread among veterinarians most useful information for the diagnosis of diseases of the eye. The clinical examination of the fundus oculi reveals not only many ocular affections but also some cerebral, renal, vascular diseases, as well as some general disturbances of nutrition, etc.; it constitutes, then, one of the principal methods of clinical exploration.

The atlas has been specially made for the practitioner; the plates drawn from nature are remarkably exact and their reproduction in colors most perfect.

The book is written by two physicians, one of whom is also a veterinarian, and both well qualified for the undertaking; it is divided into five chapters: 1. Anatomy of the globe. 2. Generalities on refraction. 3. Methods of exploration of the eye. 4. Normal condition of the fundus in the horse, ass, mule, cattle, sheep, goat, cat and dog. 5. Pathological conditions of the fundus, vitreous humor, optic nerve, retina, choroid.

TREATISE ON TECHNIC AND THERAPEUTIC SURGERY OF DOMESTIC ANIMALS (*Trattato di tecnica e terapeutica chirurgica generale e speciale degli animali domestici*). By Dr. N. Lanzillotti-Buonsanti, Director of the Milan Veterinary School. Fratelli Bocca, Editori, Milan.

Some years ago the first volume of this most complete work was issued. The second volume has just been published. It is certainly for the present the most thorough work of its kind in the Italian language. Forming a book of over 1000 pages, it contains no less than 528 woodcuts, and treats of the surgery of the head and trunk. The entire work is divided into two parts. In the first the entire surgery of the cranium, of the face, ears, guttural pouches, eyes, mouth, nasal cavities and salivary glands is minutely described. In the second the surgery of the neck, larynx, trachea, œsophagus, thorax, abdominal organs, receive also their deserved attention; and then come the various forms of hernias, the operations upon the genital and urinary organs,

the castration of males, that of females,—and, to finish, the surgery of the tail. The bibliography which accompanies each branch is simply enormous and the references that are given show the immense amount of work that Prof. Lanzillotti must have gone through in preparing it.

The book is certainly a very valuable addition to Italian literature. It is one which veterinarians of all nations will be proud to possess and to profit by. The third volume is announced as being prepared. We have no doubt that, after reading the second, its publication will be anxiously looked for.

BONES OF THE EXTREMITIES OF HORSES, WITH INSCRIPTION OF THE INSERTIONS OF MUSCLES, TENDONS AND LIGAMENTS, with an Atlas of 18 Plates. By Doctor R. Schmaltz, of the Veterinary School of Berlin. Published by Richard Schoetz, Luisenstrasse, 36.

This is a truly artistic work, in which the bones of the legs are represented half natural size, perfect in detail and of a marvellous exactitude. On each bone is carefully and correctly outlined the place of ligamentous, tendinous and muscular insertions. There are triplicate plates, giving Latin, German and French names, in such a way that the reader can refer to each individual without difficulty. It is so handsomely made out that students cannot fail to see the profit they can have in studying with it their anatomy of the function of locomotion. Teachers of anatomy will certainly not fail to see the advantages they can derive from it in their own illustrations.

TREATISE OF BOVINE SURGERY (*Manuel opératoire pour l'espèce bovine*). By M. J. Guittard.

Though our works on operative surgery cover the general principles applicable to manipulation required in bovine surgery, the work of Mr. Guittard recommends itself by much information of importance which is not found in our works on surgery. The author has had years of practice, he is a close observer, and his very large country practice has given him many opportunities to overcome difficulties which are not met by the practitioner who has at hand all the paraphernalia of the operating room. On this account the contents of his manual will be of great interest to the young veterinarian who has just graduated and is certainly ignorant of the requirements and difficulties of bovine practice in the country.

The work is divided into five chapters and forms a volume of nearly 400 pages, illustrated by 112 plates. Sold by the author at Astaffort.

JURISPRUDENCE VETERINAIRE (Veterinary Jurisprudence). By A. Coutt.

This is a part of the Cadeac Encyclopædia, published by the house of J. B. Bailliere, forming an interesting volume of nearly 600 pages, in which this important branch of veterinary medicine is treated as it is applied to French legislation. The book is divided into four parts and each one of those into a number of chapters, where the subjects of sale, warranty, legal proceedings and expertise are fully treated. The last chapter of the fourth part, which treats principally of the diseases which are made by law inhibitory, is particularly interesting. The law which regulates what may constitute a breach of warranty sufficient to break off a sale made under the pretence of absence of any of the inhibitory vices is presented to the reader in such a manner that the duties of the veterinarian can be readily understood. To those who are by their professional calling required to be thoroughly posted on the subject of veterinary jurisprudence, the book will prove of great value.

COLLEGE COMMENCEMENTS.

AMERICAN VETERINARY COLLEGE.

The graduating exercises took place on Thursday afternoon, March 31st, in the lecture-room of the college building, and the President of the Board of Trustees, Dr. Faneuil D. Weisse, presented the diploma of the college, with the degree of D. V. S. (Doctor of Veterinary Surgery), to twenty-six young men, as follows:

Charles Steward Atchison, Brooklyn, N. Y.; Walter Gideon Biehl, Loyalsock, Pa.; William Franklin Braisted, Port Richmond, N. Y.; Peter Thomas Bergen, Fordham, N. Y.; John Mason Broadwell, Morristown, N. J.; John Francis De Vine, Rhinebeck, N. Y.; Howard Julius Earl, Natick, Mass.; George Percy Ellice, Jersey City, N. J.; R. W. A. English, Jersey City, N. J.; Edward Charles Fox, Baltimore, Md.; John Frederick Fausner, New York, N. Y.; William Henry Hogan, Bayonne, N. J.; William Lawrence Johnson, Brooklyn, N. Y.; Lester R. J. Limbeck, Jersey City, N. J.; James Jerome Molony, Brooklyn, N. Y.; Charles Henry Myers, Middletown, Conn.; Andrew Raphael Morris, New York, N. Y.; Joseph Franklin Price, Cogan Station, Pa.; Adolph John Pistor, Jr., Newark, N. J.; Wilbur John Southey, Bridgeport, Conn.; Edward Fairchild Sanford, Oxford, Conn.; Robert Allan Stimson, Port Henry, N. Y.; Charles Elmer Ellsworth Tomlinson, Williamsport, Pa.;

Roger Irving Twombly, Alton, N. H.; James Washington Walker, Brooklyn, N. Y.; George Weisbrod, Brooklyn, N. Y.

George Francis De Vine, having passed the best general examination, received the 'Trustees' gold medal.

Adolph John Pistor, Jr., having passed the second best general examination and Edward Fairchild Sanford the next best examination also received prizes.

John Francis De Vine received the Faculty's gold medal for best practical examination before a committee of three practicing veterinarians of New York and Brooklyn.

The prize of Dr. Liautard for best anatomical specimen prepared by a member of the graduating class was awarded to Edward Charles Fox.

W. Fretz, of the second-year class, having obtained the greatest proficiency was awarded the free scholarship for the year 1898-99, and W. A. Young being the most proficient in the first-year class secured the half-year free scholarship, and the latter secured Dr. Liautard's medal for greatest proficiency in junior anatomy.

The annual alumni dinner was held in the evening at the Hotel Marlborough, and there were quite a number of the alumni present, twelve classes being represented, members of the faculty, and a few friends of the students. Toastmaster Hoskins was extremely versatile in his subjects, fitting them nicely to the personality of the gentlemen called upon, and the responses were happy and appropriate. The class historian kept the company convulsed with amusing "roasts" of his fellow classmates, some of whom took occasion to "roast" the "roaster" at the conclusion of his history. The banquet was over at half-past ten, and the party broke up amid cheers for their alma mater.

ONTARIO VETERINARY COLLEGE.

The graduating exercises of this college were held in the lecture hall of the college building, 40 Temperance Street, Toronto, Can., March 25, and the following gentlemen received their diplomas :

Walter J. Ackerman, St. Albans, Vermont; William L. Adams, Cabot, Vermont; Daniel Allen, Chesley, Ont.; Arthur E. Atwood, Somerville, Mass.; John D. Bell, Port Elgin, Ont.; Wm. D. Brand, Forest, Ont.; Charles E. S. Brind, Stourbridge, Eng.; Lawrence Bailey, Rosemont, Ont.; Samuel Caldbick, Brussels, Ont.; Geo. K. Cranston, Atwood, Ont.;

William R. Clark, Pettisville, Ohio ; E. T. Cunningham, Colbeck, Ont.; Robert B. Coutts, Seattle, Wash.; Harlo R. Clark, Brookfield, N. Y.; J. G. Cruikshank, Deloraine, Man.; William Henry Corey, St. Albans, Vermont ; Elues E. Cary, Orlando, Florida ; J. L. Devereau, Waterbury, Conn.; Lawrence T. Dunn, Providence, R. I.; George H. Davidson, Grand Forks, North Dakota ; James Dixon, West Liberty, W. Va.; Orvil A. Delong, Florence, Ont.; James Elmer Ellis, Rockport, Ill.; Geo. T. Elliott, Delhi, N. Y.; William E. Fairbanks, Lewiston, Maine; Carl Wallace Fisher, Cabot, Vermont; Thomas I. Fletcher, Ashland, Neb.; P. Le Clere Gauntt, Lumberton, N. J.; Benjamin W. Groff, Massillon, Ohio ; George W. Higginson, Hawkesburg, Ont.; John P. Howland, Taunton, Mass.; Walter G. Hurgett, Wermersville, Pa.; Fred M. Hayward, Deansboro', N. Y.; G. Philip Hayter, London, Eng.; George T. Irons, Abilene, Texas; Andrew R. Jordan, Dutton, Ont.; Thorfin Lambrecht, Montevideo, Minn.; Edward Henry Lawley, Brandon, Man.; John S. McIntyre, Sandhill, Ont.; Duncan McKenzie, Teeswater, Ont.; Alexander McGregor, Poland, Maine; Archibald D. McLachlan, Crampton, Ont.; John A. McDonald, Chicago, Ill.; Roderick MacDonald, Rosshire, Scotland ; G. W. Mackie, Summerside, P. E. I.; Hamlet Moore, Boston, Mass.; Frank J. Neiman, Marshalltown, Iowa ; Ion Watson Parks, Burlington, Vermont ; John S. Pollard, Ashton, R. I.; Burton W. Powell, Stockdale, Ont.; Horace Panet, Winnipeg, Man.; Louis Pauquette, St. Thomas, Ont.; John Albert Raleigh, Newcastle, Jamaica, W. I.; Thomas Rowland, Toronto, Ont.; Bertsch Royer, Birnamwood, Wis.; J. W. Rutlege, Portage La Prairie, Man.; Edgar Burke Shaw, Sommerhill, Ill. John Short, Grand Valley, Ont.; Harry W. Stedman, Springfield, Mass.; James E. Sexton, Westchester, Mass.; Andreas I. Sorensen, Modesto, Cal.; Edwin R. Stockwell, East Wilson, N. Y.; John Pront Straghan, Jewett Centre, N. Y.; Charles H. A. Stevenson, Carman, Man.; Thomas Sims, Willow City, N. Dak.; James T. Shannon, Lexington, Ky.; Samuel Shepard Treadwell, Brooklyn, N. Y.; Albert G. Van Tine, Mill Grove, N. Y.; Alfred C. Walker, Chichester, Eng.; William M. Wilson, Hartstown, Pa.; John Mason Young, Roland, Man.

The following were the prize-winners: The gold medallist was Mr. C. W. Fisher, of Cabot, Vermont. In diseases and treatment, 1st prize, silver medal, C. W. Fisher ; 2d, J. T. Shannon ; 3d, J. S. Pollard, P. Le C. Gauntt, and A. C. Walker. Materia medica, 1st, L. Baily ; 2d. J. T. Shannon ; 3d, C. W. Fisher.

Chemistry, 1st, R. Macdonald; 2d, L. T. Dunn; 3d, C. W. Fisher. Pathology, 1st, G. F. Irons and J. T. Shannon; 3d, C. W. Fisher. Physiology, 1st, C. W. Fisher; 2d, R. Macdonald; 3d, J. T. Shannon. Anatomy, 1st, C. W. Fisher; 2d, G. F. Irons; 3d, E. H. Lawley. Entozoa, Lawrence Baily. Dissected specimens, 1st, S. S. Treadwell; 2d, R. Macdonald; 3d, J. A. Raleigh; 4th, W. M. Wilson; 5th, J. W. Parks; 6th, J. P. Straughan.

NEW YORK COLLEGE OF VETERINARY SURGEONS.

The conferring of the degree of V. S. by the Board of Trustees of this college occurred on April 1st, and took place in the lecture room of the college building, the following gentlemen receiving diplomas:

Philip Caspian Finn, William Lawrence Fowler, Niran Odell Gilbert, James Mannington Richardson, Arthur Ward Smith, James Edgar Smith, Valentine L. Smith, and William Henry Wheeler.

The gold medal for the best general examination was awarded to Dr. Richardson and the practical prize to Dr. Wheeler.

In the evening the faculty, class, alumni, and friends of the college enjoyed a delightful banquet at the Arena, Thirty-first Street, near Broadway, and when the dishes were cleared away, Toastmaker Wheeler introduced the various speakers, who responded to subjects as follows: "New York College of Veterinary Surgeons," Herman M. Briggs, M. D.; "Class of '98," Philip C. Finn, V. S.; "The Graduate," Harry D. Gill, V. S.; "The Alumni," James H. Ferster, V. S.; "Lost Opportunities," George P. Biggs, M. D.; "Business Methods," R. S. Huidekoper, M. D., V. S.; "The Press," W. Horace Hoskins, D. V. S.; "Farewell Greeting," Arthur Ward Smith, V. S.

M'GILL UNIVERSITY (FACULTY OF COMPARATIVE MEDICINE AND VETERINARY SCIENCE).

The graduating exercises were held in the William Molson Hall, Friday afternoon, March 25th, and twelve gentlemen received their degrees of D. V. S., as follows: W. B. Wallis, John P. Spanton, W. Lincoln Bell, D. Cullen, L. A. Paguin, B. K. Baldwin, J. B. Hollingsworth, A. W. Cleaves, J. B. Hart, G. H. Lambert, J. G. Pfersick, and G. H. Burke. Prizes were presented as follows: Veterinary medicine and surgery, W. B. Wallis; cattle pathology, W. B. Wallis; pathology, W. B. Wallis; materia

medica, W. B. Wallis and W. L. Bell ; anatomy, James McGregor ; physiology, James McGregor ; botany, B. F. Humphries. The Dean's silver medal for best general examination in all subjects went to W. B. Wallis. Best essay read before the Veterinary Medical Association, 1st, J. W. Symes ; 2d, W. L. Bell ; 3d, W. B. Wallis. Best essay read before the Society for the Study of Comparative Psychology, 1st, J. B. Hart ; 2d, L. A. Paquin. Examination of horses for soundness, W. L. Bell. The valedictory was delivered by W. Lincoln Bell, and the address to the graduates by Prof. M. C. Baker.

M'KILLIP VETERINARY COLLEGE.

The second annual commencement exercises of this school were held in the college auditorium on March 30, the baccalaureate address being delivered by Prof. L. A. Merillat, the salutatory by Louis Wagner, of the graduating class. The class history was read by Addison C. Spurling, the prophesy by J. H. Hawke, the poem by C. B. Davis, and the valedictory by William Wilson. President McKillip conferred the diploma of the College upon the following gentlemen : George J. Dandurand, Clarence B. Davis, James H. Hawke, Frederick J. Leith, M. D. C., Charles J. H. Schroll, Addison C. Spurling, Louis Wagner, William L. Williamson, William Wilson, and W. E. A. Wyman.

CORRESPONDENCE.

VETERINARY EDUCATION IN NEW YORK STATE.

FLUSHING, NEW YORK CITY, March 18, 1898.

Editors American Veterinary Review :

DEAR SIRs:—Although the two opposing views about the prospects of veterinary education in this State have now been stated by the junior editor of the REVIEW and Prof. Williams, of Cornell, it would be well to hear the arguments of those who are not connected with any particular school, because their judgment may be taken as impartial.

I agree with the REVIEW that the two successive leaps in the entrance requirements for veterinary students were not only unwise but injudicious, and that they have put a temporary check upon a number of intending students. Yet, it is hardly probable that such young men will be driven to the veterinary schools of neighboring States, because the great majority of them would certainly wish to practice in their home State, and

they will realize what little chance they have to pass the examination for license to practice in New York. In this regard the law is retroactive. Thus I believe that to these students is left only the other alternative to drill their brains up to 48 Regent counts. That this is expecting too much of any young man possessed of a clear mind and average will-power, I deny positively. While the four-year high school work required constitutes a fair school education, nevertheless, as long as no classical studies are called for it remains essentially a common English education. Such is now more or less expected of any young man entering life-work that presupposes a higher mental training than that conceded to be necessary for the practice of the common trades—and it would be an insult to the science of veterinary medicine to assume that it belongs to such company. Personally I am convinced that the flooding of veterinary schools with students during the flowering period has not been due to the low education then required, nor that the present decline in students is solely due to the higher requirements. History repeats itself, and the roads of professional evolution appear to be regulated by some eternal law, for it is a historical fact that a rise in educational requirements in the old schools has not been directly beneficial to them as regards the number of matriculants, unless accompanied or shortly after followed by a rise in the standing of the veterinary schools and by a general betterment of the status of the veterinarian as regards higher rank and better pay in established official positions and by opening up new channels of employment. But in our case the State has simply ruled to what degree veterinarians must be educated without regarding the condition of the veterinary schools, and without providing for educated labor and official employment. True, ours is a democratic country, where the scientific professions are not fostered by the State, but left to private enterprise. Nevertheless, the educated young man or his parents or advisers do not fail to observe what humble social position the average veterinarian commands, how small his remunerations are for his hard and intelligent labor, and how few desirable positions are offered him after all the years of study in school and college. I believe, therefore, that as long as our veterinary schools retain the livery-stable type in their outward appearance and remain below a university teaching in spirit and as long as the general prosperity of the profession stagnates and stays as uninviting as it notably is at present, few students will be attracted to enter the profession.

What to do in order to recruit the New York veterinary schools appears to me, therefore, simple enough in theory, but I admit it will entail an enormous amount of labor and great personal sacrifice of those most directly concerned in order to carry out the changes which must be made to suit the new state of affairs. The Cornell Veterinary School being satisfied and successful, as told by Prof. Williams, with a rather ungracious air of superiority, we let it stand uncontested in its desired isolation. But our sympathy must be with the two New York City schools. They, too, have rights of their own, but which were visibly, almost intentionally, overlooked. They are both old and tried, have toiled hard and struggled bravely. They have a number of men in their faculties, the names of whom shine with lustre in the roll of our profession. The turn of events has struck these colleges squarely, and in spite of all the courage exhibited, their friends believe them in a critical condition. Surely they ought not to be allowed to decay or die. New York, the gigantic city of age and riches, will always nourish a veterinary school of the right kind, but only *one*, and this one must be "up-to-date." Let us advocate, without fear or favor, that the two New York City schools shall consolidate into one in order to perpetuate the fame of both, to double their strength as a faculty, to lessen their expenses of maintenance, and to kill forever that futile and sterile rivalryship which works upwards back into the lives of their graduates, poisoning their professional colleagueships and preventing the existence of a respected scientific body that can guide the destinies of the profession.

After the two old schools have been welded into one, that new institution must search for material support. Students' fees alone will no longer provide for maintenance of any scientific college provided with modern equipments, because the expense of acquiring and maintaining them has become too great. Fine buildings are not absolutely necessary; some of the renowned old schools of Europe are housed in decrepit walls—but their soul is great. The soul of a great school is its faculty, and half a dozen veterinary professors, which are known for their scholarship or great practical skill, will draw more students than fine buildings, fine equipments, fine locality and all the other fine things taken together in one basket. But scholarly professors are seldom rich and cannot lecture free of charge, or for the honor there is in it, and to the busy and skillful practitioners the time given to a lecture is worth so much in money. Thus great faculties are expensive.

There are those who favor the continuance of an independent college, supported by endowments. This is all very well, and we may agree with them that it is perhaps the ideal form for a veterinary college, if judged from the success of some of the old schools of Europe. Yet others will fear with me that endowments will not be easily secured, for philanthropists have never yet turned their love towards our profession, as is natural enough, and of zoophilists it is said that they die poor. So the luck is against us. But, besides, it has been demonstrated over and over again during the last few years that the tendency of individual schools has been and still continues to be towards affiliation with the great universities of the land; and many a well-known medical school, law school, divinity school, and even some veterinary schools have given up their independence for the price of the moral, social and scientific support and the prestige bestowed upon a college by a university, which is also acknowledged by the general public. Why, for instance, the doors of Columbia University of New York should be closed to the reception of a veterinary school consisting of a high-grade faculty and students of equal education with those of medicine and superior to those of law, I cannot understand, because I am quite familiar with the views of a number of presidents of universities in the middle and western States. I have always found them highly interested in our professional development and fully realizing the important part which veterinary medicine is to play in the economic life of a great and cultured nation.

I wish to give these thoughts and suggestions a start and truly hope they may soon assume the form of enthusiastic and energetic action.

OLOF SCHWARZKOPF.

CREDIT TO WHOM CREDIT IS DUE.

LEXINGTON, ILL., April 16, 1898.

Editors American Veterinary Review:

DEAR SIRs:—In your April issue of the REVIEW I find the article entitled, "Treatment of Parturient Apoplexy," over my signature. I am at a loss to know how my name became attached to it, as the credit should be given to Dr. H. A. Pressler, of Fairbury, Ill.

Trusting you will give the doctor full credit for same, I am,
 Very truly,
 W. H. WELCH.

A HORSE is as much better than a bicycle as a thing of life is better than a lifeless thing.—(*Brooklyn Eagle*.)

SOCIETY MEETINGS.

CHICAGO VETERINARY SOCIETY.

Meeting called to order April 14th by the President, Dr. Walker. On count only eight members were present. Three visitors were in attendance. The minutes of the previous meeting were read and approved. The application of Dr. F. Lockwood Wingate for membership was duly approved and the doctor elected to membership.

REGULAR PROGRAMME.

Dr. Frank Allen presented his paper on "Dental Cysts, Deafness, Paralysis of the Ear, Tumors in Cartilage of the Ear, Fistula and Ménière's Disease," as follows:

Dental Cysts.—These may be found in all parts of the body, but generally in the sinuses of the head and near the base of the ear. They consist of a membranous sack containing developed or partially developed teeth. They would, in my opinion, constitute an unsoundness, necessitating a surgical operation for their removal, although many animals pass through life without one and are still serviceable.

Deafness.—This, from whatever cause, whether congenital or accidental, is a decided unsoundness. The causes of deafness in a horse are numerous and not well understood. Since the overhead trolley wires have been in existence I have come across several cases from severe electrical shocks.

Paralysis.—This, although a great disfigurement, I should hardly call an unsoundness, as a horse with paralysis of either one or both ears is just as good for service as a horse without. I should consider it a bad blemish, but not unsound.

Cartilage Tumors (Enchondromata).—These tumors, if they should grow from the cartilage of the ear, although I have never seen one, I should consider them a decided unsoundness. Judging from my experience with them on the sternum, where I believe unless operated upon at a very early stage, they are incurable, and they seem to grow again faster than ever after being removed.

Fistula.—This is an unsoundness, in my opinion, necessitating a surgical operation. I have come across two of them recently, both passing from the inside of the conchal cartilage, running downwards and forwards about four or five inches. They both healed up nicely after being curetted out. I believe a common cause of these to be the use of a twitch on the ear.

Ménierè's Disease (Labyrinth Vertigo).—This disease I believe to be a most important one from a medical and legal point of view in an examination for soundness, for, as far as I am aware, there are no symptoms by which it may be detected unless the animal should be seized with vertigo while being examined, which would be improbable. That this disease occurs in our patients very frequently I firmly believe, and also that many of us make an error in diagnosis by calling it megrims, or staggers, and account for it by a reflex action from the intestinal tract, but surely if errors in diet were always the cause megrims would be far more common with us than it is. What brought this disease prominently to my notice was the fact that I unwittingly purchased an animal affected with it for my own use, and which afterwards showed all the symptoms of this disease as manifested in the human being. If you will pardon me for a few moments, I will give you the symptoms of this particular case, as I had an opportunity to hold a post-mortem on it, for the animal kindly committed suicide while in my possession.

After I had purchased the animal, I asked the owner if he had any bad habits. He said no, except that he had "a bee in his bonnet." I drove him for awhile, and one day while climbing a hill at a walk, he suddenly jumped to the right side and shook his head as if a wasp were in his left ear, staggered and would have fallen if I had not jumped to his head. When I went to put my hand up towards his ear it seemed as if his vision was distorted, for he shrank away as if he expected to get hit; the conjunctiva were highly injected. In about fifteen minutes he was able to stand without help, and in half an hour fit to be driven. I tried dieting, bleeding, physic—bringing no results. On post-mortem I found the Eustachian tube on the left side greatly reduced in size, as was also the guttural pouch and the membranous labyrinth in a state of inflammation and about one-half the diameter of the right ear. I will try to explain my theory for this disease:

I believe that it is caused by a hyperæmia of the membranous labyrinth and a partial occlusion of the Eustachian tube, and not a hæmorrhage into the labyrinth, as suggested by Fleming, for if that were the cause why should the symptoms be only transitory? The hyperæmia depending on either, first a venous stasis from mechanical or other obstruction to the return current, or, second, an increased arterial supply. First, the causes of the venous stasis might be mechanical obstructions to the

great vessels of the neck by collar, etc., the sudden lowering of the head, the venous current being retarded by gravitation, coughing by increasing the thoracic pressure and so obstructing the passing of blood into the right auricle. Second, increased arterial supply produced by sudden physical exertion, rigidity of the walls of the arteries by diminishing the elasticity and so increasing the pressure. The increase in the labyrinth blood supply in the human is characterized by vertigo, impairment of vision, etc., and why not in our patients? We are all aware that the semicircular canals are closely connected with coordination of movement and equilibrium, as experiments prove that section of one side of them caused incoordination on that side and section of both loss of equilibrium. Epidemic parotiditis is particularly apt to affect the labyrinth structures, and recent investigations prove this to be due to infection from the blood current. The same disease would also affect the middle ear by partial occlusion of the Eustachian tube, thus rendering the air pressure on the tympanum unequal, and knowing that this in a human being will give rise to symptoms analogous to labyrinth vertigo why should it not do so in a horse, and I believe future post-mortems will prove that partial occlusion of the Eustachian tube is a frequent cause of this trouble. Of course, if this disease could be detected during examination, it would, in my opinion, constitute an unsoundness.

DISCUSSION.

Dr. Walker: I owned a horse which after my having him for about six weeks tried to get his head through the wall of his stall one night. I got him out and sent him to pasture for about two or three months and afterwards sold him. Two or three weeks later he was hurt again and I found him to be in the exact condition as at the time when I bought him. I think that there are some cases where it is quite possible to detect them. You will find them to be very bad leaders if you lead them from behind, and if a man tries to lead him with a halter he is inclined to pull back, but there are many cases where they deceive a veterinary surgeon.

Dr. Robertson: I have never been able to diagnose a case.

Dr. Baker: Mr. Chairman:—I never had an opportunity of making an autopsy on a case of this kind, but they are comparatively not rare in practice. I rather admire Dr. Allen's theory with regard to the cause, especially after he had found an occlusion of the Eustachian tube. I think I could suggest as a possi-

ble additional cause of the hyperæmia of the labyrinth that it might come directly from that, for the function of the Eustachian tube is to relieve the drum from excessive tension, and on this account there might be a great deal of tension of it. This naturally, especially in cases of violent sounds, would produce such violent movements of the drum as to increase pressure on the internal ear, and through that presumably a congestion takes place, so that with the fact existing, as proven by the post-mortem, there is occlusion of the Eustachian tube in such a case, the result seems to be quite philosophical. In the paper, which I think, although short, was very good indeed, Dr. Allen speaks of congenital or accidental cysts. I could hardly imagine a cyst like that being accidental. I supposed they were always congenital. Then regarding his conclusion regarding soundness or unsoundness in paralysis of the ear. If he recognized it as paralysis, it is a diseased condition. I am inclined to call it an unsoundness, and I would not call a horse that has paralysis of one or both ears sound.

Dr. Allen: I think Dr. Baker makes a mistake in saying that I said that dental cysts are congenital or accidental. I said that deafness was congenital or accidental.

Dr. Baker: Speaking of congenital deafness. Many cases of congenital deafness in both horses and dogs which I found myself were without any external opening. The skin was grown right over the auditory canal. Hearing was restored by simply cutting and opening through, removing the skin that occluded the external auditory canal. Dr. Allen did not refer to any particular cases of deafness either congenital or accidental.

Dr. Campbell: I would like to ask Dr. Allen just in what condition we would find a horse in paralysis of the ear. What is it, a lop ear?

Dr. Allen: What I have seen in cases of paralysis of the ear have been in conjunction with paralysis of the lip, and there was always a drooping of the ears which I would call a lopping.

Dr. Campbell: Did you ever hear of horses having had something put in their ears that were in that condition?

Dr. Allen: I have seen cases of that kind, but they would recover after removal of the foreign substance.

Dr. Wingate: I have seen cases in the West Indies where it is called lop ear. I do not know whether it is due to paralysis. It is due to a very large tick that is found there and if not looked to in time is apt to destroy the ear, and sometimes the ear drops off. This tick seems to be very fond of the ear and it

is very prevalent out there. In fact they are so prevalent that nearly every time before grooming the horse they look after the ticks first and remove them.

Dr. Walker: I cannot agree with Dr. Allen that ears with paralysis are sound, though I have seen many lop-eared horses that I consider sound. I remember one that I saw some two years ago. He was taken into a blacksmith shop and he was somewhat ugly to shoe. They put a twitch on him, but it slipped off. The blacksmith then hit him with it and he had paralysis of the ear. I saw him several hours later and pronounced him to be an unsound horse. There are several breeds of horses lop eared, for instance, the mule or the jack, but I think when it comes down to a horse with paralysis of the ear I consider him an unsound animal.

Dr. Campbell: Mr. President: This Ménierè's disease I never heard of until Dr. Clancy gave me the list, and I would like to ask Dr. Allen if there is much of it.

Dr. Allen: I think that nine out of every ten cases of staggers are Ménierè's disease. You will find it mentioned in two or three books on the human being. When I had this horse some two years ago there was quite a discussion in England over this disease. Dr. Fleming read a paper on it before the Central Veterinary Medical Association in 1885. He says he never made a post-mortem examination. None of the gentlemen present had ever done so.

Dr. Robertson: Mr. Chairman: I am inclined to favor Dr. Allen's philosophy on this disease, especially in regard to these so-called cases of staggers. In all cases that I have run across I find it to differ from staggers. I have seen different digestive troubles, such as partial loss of sight, also pressing the head against the wall, etc., following indigestion or some trouble of that kind, but I have never seen this peculiar shaking of the head that would indicate an ear trouble. Horses that I have known that were attacked in this way have been always properly taken care of and their previous history was all right. Their digestion was good. I don't see how we get this peculiar shaking of the head, unless from ear trouble. I think the doctor's philosophy is correct, and it would be well to investigate future similar cases.

Dr. Allen: In one of my cases, the only treatment of any effect was hypodermic injections of pilocarpine, and this helped only temporarily. I tried bleeding, physicked him—in fact tried everything, without any effect. Hot or cold weather made no difference.

On motion the discussion was closed.

The resignation of Dr. E. L. Quitman was again laid over until next meeting. The resignation of Dr. Frank Allen was presented for action. Upon request of the President, Dr. Allen withdrew the resignation.

Motion by Dr. Baker, seconded by Dr. Robertson, that the President hire the society room of the St. Andrews Society for the use of the Chicago Veterinary Society, so that we be enabled to have our own society room. Voted—carried.

On motion, adjourned.

L. CAMPBELL, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The regular bi-monthly meeting was called to order by the Vice-President, Dr. Buckingham, at Elks Hall, 1006 E Street, N. W., Washington, D. C., on January 20. Members present; Drs. French, Robinson (C. B.), Buckingham, Barton, Walmer, Turner, Salmon, C. F. Hadfield, R. H. Hadfield, and Yetton.

Unfinished business was the report of the Legislative Committee on the bill introduced in Congress to regulate the practice of veterinary medicine in the District of Columbia. The committee reported that it had drawn a suitable bill and that it was before the District Committee at that time.

Drs. Barton and Walmer were appointed a committee to draw up suitable resolutions in memory of our late fellow-member, Dr. Adamson, who was recently killed while in practice, at Minneapolis.

A paper was read by the Secretary, regarding the workings of the Newark (N. J.) Milk Company.

Dr. C. B. Robinson made an interesting report on his inspection of the cattle and dairy of the Pasteur Milk Co., a company in which the District Medical Society is largely interested.

Dr. Salmon gave a very interesting and profitable address on the meat inspection methods of the Agricultural Department, following which was a general discussion on the subject of meat inspection.

Dr. C. B. Robinson then reported a disease discovered and named by him as "Sonus Neurosis." This disease is found only among horses serving in the fire department, and has been under observation for several years. During the last two weeks four cases were observed. The symptoms are manifested upon

the ringing of the gong in the station or hospital or even by a pistol crack or the sudden slamming of a door. Immediately following any of these noises the animal gets excited and a spasmodic contraction of the muscles of the leg will be observed, either fore or hind leg may be equally affected. The leg will frequently be elevated to an angle of 45 degrees and held there some time. Ringing the gong continuously increases the symptoms. The lameness does not persist, as the animal warms out of it. When cases are taken to the hospital they usually resolve in a few days, but frequently re-attacks occur and several horses have been transferred to other work than answering fire alarms owing to its persistency. At other work these symptoms are not observed. Dr. Robinson's theory is that of auditory irritation.

The President appointed Drs. French and Walmer to prepare papers for the next meeting.

Upon motion of Dr. Salmon the meeting adjourned.

The regular bi-monthly meeting was called to order, March 26th, by the President, Dr. Acheson. The following members responded to the roll-call: Drs. Acheson, Barton, Buckingham, R. A. Hadfield, Pearson, C. B. Robinson, Turner and Yetton. Visitor: Dr. Robertson, Veterinarian, U. S. Army.

The Legislative Committee, through its Chairman, Dr. Buckingham, reported its inability to get a hearing before the District Committees of Congress.

The Committee on Resolutions appointed to draw up fitting resolutions relative to our recent loss, by death of Dr. John H. Adamson, reported the following resolutions:

WHEREAS, It has pleased Almighty God to remove from his earthly labor our fellow-member, Dr. John H. Adamson;

WHEREAS, This Association deeply grieves the loss of Dr. Adamson, who, by his genial disposition, manly traits, and high professional attainments, has endeared himself to all of us; be it, therefore,

Resolved, That a copy of these resolution be spread on the minutes of this Association and a copy be forwarded to each of the veterinary journals and to the family of our deceased member.

The election of officers to serve for the coming year resulted in a re-election of the present officers, as follows: President, Dr. Acheson; Vice-President, Dr. Buckingham; Secretary and Treasurer, Dr. Turner; Trustee for three years, Dr. C. B. Robinson; Trustee for two years, Dr. Pearson; Trustee for one year, Dr. Walmer.

Papers and Reports of Cases.—The papers which were to

have been read at this meeting by Drs. Walmer and French, were continued over to the next meeting.

Dr. C. B. Robinson reported another case of "Sonus Neurosis," which has been under the observation of several of our members. In speaking further about this disease, Dr. Robinson stated that during his connection with the fire department of the district, during the last fifteen years, he had seen more than 50 cases of this disease, but had never reported them, supposing the disease had been observed abroad, but after a recent search of veterinary literature on the subject he had failed to see it mentioned; therefore, he had taken the liberty of naming and describing this disease. The disease is spoken of as "gong lameness" in the Fire Department.

Drs. Walmer and Robinson made a report on some tuberculous herds recently tested with tuberculin. In a herd of 48 cows, three reacted. Two of these cows were in fair condition, large milkers, reaching 108° and 107.6° . Each received 2 c. c. of tuberculin and in both cases the milk secretion was permanently stopped and each cow had been milking $3\frac{1}{2}$ gallons a day. Post-mortem alterations were almost microscopic in size and carcasses passed for meat. A "bulling cow" in this herd whose normal temperature was 102° F. went to 103° F. in 15 hours. She was killed by request of owner, but no diseased condition was found. Another cow in this herd had a large ulcerating tumor on the jaw, supposed to be actinomycotic in origin. This cow did not react. The tumor was examined by Dr. Lamb, of the Army Medical Museum, and proved to be tuberculosis.

In another herd of 31 cows, 15 reacted and were condemned for dairy purposes. The owner endeavored to have them slaughtered in the District of Columbia, but failed. He then shipped them to Alexandria, Va., but the efficient State Veterinarian of Virginia, Dr. Niles, was notified, and he refused to let them be slaughtered for food purposes. They were then shipped to Baltimore and Dr. Clements was notified and he promptly turned them down. The owner then (March 8th) shipped these 15 cows to Wilmington, Del., and they were there slaughtered and sold, since the State was without any official veterinarian who could be notified. This illustrates the value of official veterinarians acting in harmony and the loss a State bears without having one.

The recent farmers' institute held at Alexandria, Va., was brought up in this discussion, and the action of Maj. Alvord,

Chief of the Dairy Division, Bureau of Animal Industry, was severely criticised for denouncing the use of tuberculin in testing dairy herds.

The question of passing cows for dairy purposes in which but three of the teats were secreting was warmly discussed by those present. On most farms the owner claimed to use the milk of "three-teaters" for family purposes only. Dr. Robinson found pus in most of these non-secreting quarters. Where quarters were atrophied and clear of nodules and pus, he passed the cows for dairy purposes.

In this discussion the recent decision of the Attorney for the District was severely condemned, in which he held that cream was not milk and that dairymen who have had their licenses revoked for keeping unsanitary dairies could ship cream into the District without having such license.

Meeting adjourned.

J. P. TURNER, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting of this association was called to order in Room 37, New York Academy of Medicine, at 8.30 P. M., April 6, Dr. Huidekoper presiding. On roll-call the following members responded: Drs. Bretherton, C. C. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Dickson, Dair, Ellis, Farley, Gill, Huidekoper, Lamkin, Machan, MacKellar, Murphy, Neher, O'Shea and Ryder (18).

Report of Judiciary Committee.—Dr. O'Shea (Chairman) reported that the bill introduced to allow Charles McCormick, of the city and county of Albany, to practice, although it had passed the Assembly, was killed in the Senate, and that the bill exempting veterinarians from jury duty in New York and Kings Counties had passed both houses and was in the hands of the Governor, awaiting his signature to become a law. Moved and seconded, that the report be accepted as read. Carried.

Ways and Means Committee.—Dr. Ryder (Chairman *pro tem.*) reported for this committee that at the May meeting Dr. J. S. Cattanach will read a paper on "Economy in the Practice of Veterinary Medicine," and that Dr. Lamkin will read a paper on "Parturient Apoplexy." Moved and seconded that the report be accepted and placed on file. Carried.

Testimonial Committee in behalf of Dr. O'Shea.—Dr. J. S. Cattanach (Chairman) reported that he had done considerable

work, but required more men on the committee and requested that two more be appointed. This request was granted, and the President appointed to act with that committee Drs. Delaney and Grenside.

Papers.—Dr. Huidekoper delivered a most interesting and instructive discourse on “Navicular Disease.” The discussion which followed was led by Dr. A. W. Clement, of Baltimore, who mentioned as a treatment for this condition what he termed “surface firing,” with the thermo-cautery. This treatment, in which the skin is *not* punctured, is repeated daily for a time, then every second day, with good results. Among the discussionists that followed were Drs. Neher, Schwarzkopf and Clayton. Moved and seconded that the discussion close. Carried. Moved and seconded that a vote of thanks be extended the essayist for his most excellent address. Carried.

Dr. Ryder next read a paper entitled “College and State Examinations.” Dr. Biggs led in the discussion of this paper, and was followed by Dr. A. W. Clement, member of the State Board of Examiners of Maryland. Among the discussionists who followed were Drs. Gill, Moeller, De Vine and Huidekoper. Discussion was closed by Dr. Ryder. Moved and seconded that a vote of thanks be extended to Dr. Ryder. Carried.

The following communication from Dr. Roscoe R. Bell was read by the Secretary :

NEW YORK, March 2, 1898.

Dr. R. W. Ellis, Secretary V. M. A. N. Y. County :

DEAR DOCTOR :—I hereby tender my resignation as Chairman of the Committee of Ways and Means of this Society.

ROSCOE R. BELL.

Moved and seconded, that the resignation be referred to the Board of Censors to report on at the next meeting. Carried. Moved and seconded, that the meeting adjourn. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary.*

UNITED STATES V. M. ASSOCIATION.

A newsy letter from Secretary Stewart, dated April 18th, to the editor of the REVIEW, gives such a comprehensive narrative of National Association affairs that we subjoin the salient points in the writer's own words. After speaking of the great amount of correspondence which he is conducting in its interest, he says :

“The Association’s affairs seem to be moving forward very encouragingly, and the outlook is flattering for a good programme and a successful meeting. I believe the discussion on meat inspection will prove an attractive feature. The discussion will be directed along lines calculated to help the veterinarians in cities to develop public sentiment in favor of this sanitary regulation, as well as outline the general principles governing such inspection. Every city and town should employ veterinary sanitary officers, and will some day. It is hoped this discussion will aid in hastening the day. In every city and large town there are veterinarians who would gladly serve the public as inspectors of meat markets and slaughter-houses. They would work for the establishment of such inspection, and are, perhaps, now doing what they can to that end. This Association can materially aid in this movement by a liberal discussion of the subject.

“Dr. C. A. Cary will discuss ‘Reasons for Meat Inspection’; Dr. W. Horace Hoskins will discuss ‘Methods of Educating the Public as to the Necessity for Inspection’; Dr. Leonard Pearson will discuss ‘The Necessity of Consolidation of Municipal Slaughter-houses into Large Abattoirs under Municipal Control’; Dr. Thomas J. Turner will discuss ‘Slaughter-house Inspection’; Dr. Chas. W. Heitzman will discuss ‘Retail Market Inspection.’

“In addition to the discussion, a large variety of pathological tissues will be exhibited in demonstration of diseases found in slaughter-house and market inspection.

“Papers will be presented by Dr. James Law, Dr. Roscoe R. Bell, Dr. Tait S. Butler, Dr. C. A. Cary, and Dr. A. J. Anderson, of Nebraska.

“Dr. Peters writes that the Nebraska Association will endeavor to procure cases suitable for a surgical clinic, and will do everything possible to make this feature of our meeting interesting and instructive. He hopes to secure a suitable place for holding the clinic, close to the Association headquarters, and it is believed that the operations can best be performed in the morning hours prior to the opening of our morning sessions of the first and second days.

It now remains to secure the operators. I have not yet found time to extend invitations. You would do me a great favor by suggesting the names of some of our Eastern members who are particularly skillful in surgery, and perform especially well some of the major operations.”

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

Meeting was called to order at 8 o'clock P. M., March 25th.

Mr. H. Hoopes, who was appointed as a committee to see about the certificates, made a report at the last meeting. He said that the society bought sixty certificates for seventy-five dollars at Avil & Co.'s. Thirty were taken last year and the remainder to be taken this year. It was moved and seconded that the Executive Committee be instructed to buy the other certificates of Avil & Co., and have enough stamped for the members of the classes of 1899 and 1900.

Mr. E. Newcomer made a report and said that he had the library magazines bound.

Mr. Thomas Sharpless, of Chester County, gave a very interesting talk on "Breeding and Care of Swine." It was a very interesting talk, for Mr. Sharpless undoubtedly understands his business. He is the most extensive breeder of the Chester White swine in this country. Mr. Sharpless was accompanied by his friend, Mr. Walters.

Mr. S. McClure was very influential in getting up the interesting programme for the last meeting, and the society extended him a vote of thanks. M. JACOB, *Secretary*.

MAINE VETERINARY MEDICAL ASSOCIATION.

A meeting of the Maine Veterinary Medical Association was held at Elmwood Hotel, Waterville, Wednesday, April 13. A fair number of members were present. Both the President and Vice-President being absent, Dr. H. H. Choate was elected President *pro tem*.

The election of officers resulted in the choice of Dr. W. L. West, of Belfast, President; Dr. F. L. Stevens, of Farmington, Vice-President; Dr. I. L. Salley, of Skowhegan, Secretary; Dr. A. Joly, of Waterville, Treasurer. The President appointed Drs. Russell, Choate and Joly Executive Committee.

Dr. A. Joly read a paper on the "Intratracheal Administration of Drugs." After a somewhat animated discussion, it was conceded that this method is a safe and oftentimes very convenient one, and that the effects are quick and sure.

Dr. West read a paper on "The Needs of the Maine Veterinary Medical Association," which will do the association much good if the members will take the timely admonition in regard to attendance at meetings.

Dr. West was elected a committee to look after our Registration bill before the Legislature next winter.

Drs. Choate and Salley were appointed to read papers at the next meeting.

Voted to adjourn to meet at Belfast in July.

I. L. SALLEY, D. V. S., *Secretary*.

MASSACHUSETTS VETERINARY ASSOCIATION.

The regular monthly meeting of the Massachusetts Veterinary Association was held at 19 Boylston Place, Boston, January 25, 1898. President Winchester in the chair. Members present: Drs. Beckett, Cronon, Cutting, Emerson, Frothingham, Hamilton, Lee, Lewis, McLaughlin, Parker, Pierce, Soule, and Winchester.

Dr. McLaughlin reported for the Legislative Committee, that he thought with the co-operation of each member of the association the veterinary bill would become a law at this session.

The essayist for the evening was Mr. Daniel S. J. Murphy, a student in the Veterinary Department of the Harvard Medical School, who read a valuable paper on "Roaring." A general discussion followed. Adjourned at 11.30 P. M.

HENRY S. LEWIS, *Secretary*.

NEWS AND ITEMS.

A DOG AMBULANCE has been added to the hospital of the Veterinary Department of the University of Pennsylvania.

Dr. J. B. WRIGHT, recently located at Atchison, Kans., has accepted appointment as Inspector and has been assigned to duty at St. Joseph, Mo.

DR. JOHN S. MEYER, graduate of the American, class '87, formerly located at St. Joseph, Mo., is now practicing human medicine at Pocatello, Idaho.

A SPECIALTY DOG SHOW of bull-dogs and bull-terriers was held in April at the American Horse Exchange, New York, Dr. H. D. Gill being the veterinarian.

THE corps of Inspectors in the Bureau of Animal Industry stationed at Kansas City has recently been increased by the appointment of Dr. C. H. Canfield and Dr. H. B. Chaney, of Akron, Ohio, and Dr. F. S. McCurdy, of Philadelphia, Pa.

DR. JOHN ROBERTSON (Montreal), formerly veterinarian to the Second United States Cavalry, has recently received his commission as Second Lieutenant U. S. Infantry. He will be transferred to the cavalry branch of the service at the first opportunity.

SANITARY MEASURE—BOVINE TYPHUS.—By order of the Minister of Agriculture, the importation into France and the transport of animals of bovine, ovine and caprine species and other ruminants coming from Asia, except the French colonies, are prohibited on account of the presence of typhus.

FOOT-AND-MOUTH DISEASE.—This affection is existing to an alarming extent in some parts of Italy. The most severe sanitary measures have been taken to control it. On account of the presence of the disease existing also in Switzerland, the importation of animals into the surrounding countries is prohibited.

DR. M. R. TRUMBOWER has located at Monett, Mo., and is devoting his energies to the relief of human ills. The doctor finds that his knowledge of medicine is highly appreciated and that he is doing well. He is still interested in veterinary medicine and expects to attend the Omaha meeting of the U. S. V. M. A.

DR. W. LINCOLN BELL, of Brooklyn, N. Y., who was valedictorian of the class of '98 of McGill University, has enlisted in Troop C, of Brooklyn, of which Dr. W. H. Pendry is veterinary sergeant, and Oscar Porzer, D.V. S., is also a member. The troop will soon (if it has not already) leave for active service in the war with Spain.

VETERINARIAN JOSEPH M. GOOD, of Chattanooga, Tenn., received the degree of M. D. at the commencement exercises of the Chattanooga Medical College on March 22. We trust the doctor will only use his new handle as an adjuvant to his veterinary practice, and has no intention of abandoning the equine patient. We need more of his kind.

OUR ESTEEMED CONTEMPORARY, the *Journal of Comparative Medicine*, is publishing "State Editions," the April issue being confined almost exclusively to veterinary affairs of the Keystone State, the May number to be devoted to the interests of the profession in New York. While we admire the enterprise of our colleague, we very much doubt the wisdom of ignoring veterinary topics in the remainder of the country on such occasions.

TESTIMONIAL TO DR. ARTHUR O'SHEA.—Because of his indefatigable efforts in behalf of his brother practitioners in securing the passage of the amendment exempting veterinarians of New York and Kings Counties from service upon juries, a Committee of the Veterinary Medical Association of New York County is receiving subscriptions to purchase a suitable token for presentation to the doctor expressive of their appreciation of his successful endeavors.

A VETERINARIAN BECOMES A BONIFACE.—We learn that that genial and loyal veterinarian, Dr. William Dougherty, of Baltimore, has just completed the purchase of the Hotel Studio, at Charles Street and Mt. Royal Avenue, in that city, for \$10,000, and that he will at once assume its management. During the spring and summer, he will erect an addition to it, and re-decorate it throughout. Perambulating brother practitioners will always find a welcome there.

APPRECIATIVE HORSEMEN.—At a special meeting of the Board of Review of the National Trotting Association, a gold medal was presented to the well-known horseman, Henry Fleischman, of Vienna, Austria, in recognition of his liberality and enterprise as a buyer of trotters in this country. He was the pioneer in introducing the American trotter in Europe. The medal cost \$100, and was made by Tiffany & Co. to the order of Fasig & Co.

BANDAGES FOR HORSES' LEGS.—As illustrative of the value of the 95X bandages manufactured by Messrs. Spear & Co., of Bloomfield, N. J., the following letter is explanatory: "Kentville, N. S., Canada, March 28, 1898.—Spear & Co.: Gentlemen—Would like to have you send me catalogue of your specialties with prices. I think I can use a few of those raw silk rubbers if not too expensive. The bandages No. 95X are an excellent article. Yours truly, Fred. W. Steadman."

RANK OF VETERINARIANS IN THE FRENCH ARMY.—The question of reorganization of the veterinary service in the army has been presented to the Chamber of Deputies and the following ranks proposed for each veterinarian: Veterinary inspector, 1, with rank of colonel; principal veterinarians of 1st class, 11, rank of lieutenant-colonel; principal veterinarians of 2d class, 42, rank of major; veterinarians of 1st class, 159, rank of captain; veterinarians of 2d and 3d class, 192, rank of lieutenant and sub-lieutenant.

OVARIOTOMY FOR THOROUGHbred FILLIES.—It is claimed that thoroughbred fillies from whom the ovaries have been removed will train better, keep in better condition, and be more reliable in races. The fillies Duplicate, Terrene, May Be So, and Factory Girl, the property of Messrs. Clay & Woodford, were recently unsexed, and their careers will be watched with interest. If the operation proves successful, it ought to become popular, and will eventually benefit the breeding interest by relieving the breeding ranks of many "weeds." It would also open up a new field for veterinarians.

PROLIFIC PIGS.—In times gone by, when fancy points were much more highly esteemed in pigs than at the present period, the breeding and suckling qualities of the brood sow were ignored to such an extent that the terms, pedigree pigs and sterile pigs were, to a considerable extent, synonymous terms. Not so now in some herds, as Mr. Sanders Spencer, of Holywell Manor, can relate numbers of instances of sows in his herd having litters of nineteen. At last, one of his sows has broken the record with a litter of twenty-five pigs, all alive and as playful as kittens. This is an age of progress.

DR. E. B. ACKERMAN, of Brooklyn, has recently been made the object of an attack by a disappointed seller of a horse. Called to examine a saddle horse for a member of the driving club of which he is veterinarian, the animal was condemned. The seller proved to be a member of the same club, who became incensed at the decision, and called in three other veterinarians, who passed the horse as sound, following which the seller preferred charges against the examiner before the Executive Committee of the club, who upon investigation found that the doctor had given an honest opinion, and dismissed the charges.

THIS IS A WARM ONE.—The following is a copy of an advertisement now running in a Western horse paper (with the advertiser's name concealed): "Dr. Blank's Magic Liniment, the greatest of all antiseptic wound dressings. Cures barbed wire cuts, fistula, piles, eczema, brands, old scars. I will give \$200 for any horse with barb wire wounds, also scars or blemishes such as are made with the branding iron, that I cannot cure and leave surface as if never disturbed. DR. BLANK, Veterinary *Oophorectimist*, Charleston, Ill." [How is that for a degree? The preposterous ass! Perhaps he thinks like Othello, "What wound did ever heal, but by *degrees*?"—S. R. H.]

APPRECIATIVE VETERINARIANS.—The editors of the

REVIEW have recently received so many letters accompanying renewal of subscriptions to Volume XXII in which the writers laud the work being done by this journal, and expressing the loss they would sustain if they did not regularly receive it, that it forces upon them the conviction that the only reason the REVIEW does not have upon its mailing list every veterinarian in the United States is because they are not aware of what they are missing. If every reader would make it a point to call the attention of his less fortunate brother to this fact, he would not only be assisting his colleague, but would be helping himself—for the REVIEW means just what it has often said: "The more patronage it receives the better it will be."

A VETERINARIAN THE INVENTOR OF THE PNEUMATIC TIRE.—It is not generally known that a veterinary surgeon was the source from whence sprung the present popular pneumatic tire, in universal use upon bicycles and racing sulkies and fast coming into general use upon pleasure and other vehicles; but we find the following item in the *L. A. W. Bulletin*, Boston, of April 8, 1898: "In 1889, J. B. Dunlop, a veterinary surgeon of Belfast, had constructed a hollow tire into which air was forced by means of a pump. A thin, endless rubber tube held the air, and a tough outer casing or shoe, of canvas and rubber, covered and enclosed the air tube. This, in turn, was cemented to the rim, thus providing an air cushion instead of a solid rubber tire. Experiments quickly showed that these pneumatic tires provided most luxurious riding, and added about two miles per hour to a rider's speed. These facts established their popularity, and they rapidly came into use."

THE VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY held a profitable meeting on the 5th ult., a full report of which will be found in the department of "Society Meetings." Two interesting papers were read, and the announcement of that fact brought a number of visitors to their very central rooms in the Academy of Medicine, much to the gratification of the members, clearly demonstrating the wisdom of the movement recently inaugurated to increase an interest in the proceedings among those without as well as within the membership by rendering the deliberations more instructive and valuable by providing topics for discussion, instead of the routine business of sometime ago, which consisted largely of the roll-call and a motion to adjourn. Among those present we observe the names of Drs. L. Nicolas, Charles Hall, Olof Schwarz-

kopf, C. E. Clayton, M. Kenney, J. F. DeVine, J. William Fink, E. F. Sandford, Charles S. Atchison, James W. Walker, B. Günther, August D. Moeller, Geo. P. Biggs (M. D.), and A. W. Clement (of Baltimore, Md.). Many of these are metropolitan veterinarians, and would make excellent additions to the membership rolls. Every qualified veterinarian in this district should enroll himself, and work for the interests of the association, benefitting thus his calling, his country and himself. Blank applications will be gladly furnished by Secretary R. W. Ellis, 509 W. 152d Street, New York City.

DR. SALMON ON JUDGE RODGERS' DECISION.—Concerning the decision of United States Judge Rodgers, at Kansas City, to the effect that the system of meat inspection now in practice by the Bureau of Animal Industry was unconstitutional, Dr. D. E. Salmon, chief of that Bureau, says: "The decision, I think, is rather technical, and Judge Rodgers is probably a close constructionist of the law. We rely on decisions of the United States Supreme Court for authority to show that the government has the right to inspect meats intended for interstate shipment. The intent of Congress when it enacted this legislation evidently was that the animal was a subject of interstate commerce from the time it was shipped from the State in which it was raised until reaching the destination for consumption. There is nothing for the department to do in the case as it now stands. If the meat is inspected for domestic consumption entirely within the limits of the State, then the United States authorities cannot insist on an inspection, but just so soon as it passes beyond the borders then inspection will be necessary, as this requisite is imposed by the requirements of the law. A large amount of our meats are now exported to Europe, and foreign countries will not accept them if not properly tagged and branded with the inspector's mark. Should the decision of Judge Rodgers be accepted literally by the proprietors of the packing houses and should they refuse to permit our inspectors to do their work as heretofore, we shall when shipments reach the State boundaries, simply refuse to give a certificate of inspection."

VETERINARY SCHOOLS IN THE STATE.—The New York State Veterinary College is located at Ithaca on the campus of Cornell University, and the Legislature has voted thousands of the people's money to equip it and keep it going. The announcement for the coming year gives the class for 1897-1898. There are five third-year students, only one of whom is from

New York ; eight second-year students, six of whom are from Ithaca and four first-year students. This is a very weak showing for the amount of money expended. What is the cause? The standard of admission to this and other veterinary colleges in the State has been made so high by the Board of Regents as to practically bar the majority of young men who aspire to the practice of veterinary medicine. A certificate of 48 academic counts is required to enter. The number of counts represented by each subject is : English, 8 ; geography, physical and political, 2 ; drawing, 2 ; American history and civics, 2 ; plane geometry, 4 ; algebra, 4 ; elementary French, 4 ; elementary German, 4 ; Latin, Cæsar and grammar, 8 ; chemistry, 4, and geology, 4. This is a formidable list, and it is pronounced unreasonable by some of the foremost scientific men in the State. If the Regents do not reduce the number of counts the Legislature should take the matter in hand next winter. It is absurd to spend the people's money in such a way as to furnish such insignificant results. While the veterinary colleges of this State are being strangled by the action of the Regents, those of other States and of Canada are doing a flourishing business. Students unable to pass a preliminary examination here find no difficulty in entering the schools at Toronto, Montreal and elsewhere.—(*Turf, Field and Farm*, April 22.)

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A. W. BITTING, D. V. M., Purdue University, Lafayette, Ind.

AMERICAN VETERINARY REVIEW.

JUNE, 1898.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLES.

TUBERCULOSIS.—VARIOLA.—AMERICAN HORSES.

The Society of the Agriculteurs of France is the most important of its kind in that country, its membership is very large, and in it are found some of the most intelligent workers in behalf of agriculture. A general meeting is held annually, when subjects of importance and of interest to the whole community are freely discussed. At the last reunion, which took place in the month of March, three subjects received attention, of which two are interesting to the readers of the REVIEW as veterinarians, and a third which has more relation to American trade. Of the former, one is on the subject of tuberculosis. This affection is at present engaging very much the attention of sanitary veterinarians all over the world, and, while the laws here regulating their duties are pretty explicit, there exist still in them some discrepancies. It is to fill these defects that the general government had been called upon to issue more stringent laws, by the presentation of the following, offered under the shape of a wish: "That the authorities resort to all measures likely to prevent the spreading of tuberculosis among our animals, in applying the principle of indemnity in its widest sense." Besides this recommendation of larger indemnity, it means to refer also to obligatory tuberculation, for herds where one single case has been detected. This would certainly be very advantageous in diminishing the dangers of

contagion; each case detected being then isolated, excluded from public fields, roads or markets, and only allowed to go to the slaughter-houses.

This wish demands also the passage of a law by which, "in case, when, after slaughtering, tuberculosis is found to be localized, the buyer be only entitled to the restitution of the value of the contaminated portions of the carcass." A question of jurisprudence which is but right. It is well known that in France, to be rejected by meat inspectors a whole carcass must be rejected and the disease generalized; if it is localized, only the affected part is thrown to the offals. This is a measure which our esteemed friend, Dr. Peters, has carried out in Massachusetts.

Variola has also occupied the attention of one section of the Société. France draws many of her sheep from Algeria, and Algerian sheep have often been the cause of outbreaks of the disease on French soil, where they have done much harm. A measure of local importance has been demanded, viz., that at least fifty days previous to the day of embarking, all Algerian sheep should be vaccinated and marked with an official stamp, as an evidence that they have been submitted to that measure.

While the two preceding measures have only a special local interest, and for our readers one of curiosity, the third measure, which I mentioned above, refers to American exportation, and on that account interests us all. Not satisfied with the protection that France has accorded to her breeders and raisers of cattle, principally those of Normandy, by which the importation of American cattle was cut short, a more and not less important move has been started with an object which, if it is realized, might considerably diminish the trade of American horses with France. The wish presented by the "Société des Agriculteurs" is to the effect that imported horses shall be subjected to a tax of \$40 a head, that they will be submitted to a quarantine of same length that is imposed upon French horses exported to other countries; that horses imported into France shall be branded under the mane with a hot iron to avoid frauds. Ex-

ceptions are granted to these measures for thoroughbreds, race-horses, and animals bought by the State.

Of course, these wishes are only the expressions of votes made at a meeting, and from that to the passage of laws complying with the request. We know by our own experience how it is done in the States; therefore, there is no great need for American traders to be afraid. American horses have been lately imported extensively into France; they are liked; they are a success. There is no need to be anxious.

The reasons presented for the justice of the wish are: "First. That it is known that American horses have brought into France and into England contagious diseases of the greatest severity. Second. That French horses are submitted to a quarantine of 90 days in American ports, while none is imposed on American products here."

Decidedly, we fear that French authorities know but little about the sanitary conditions of the live stock in America, and probably less of our sanitary measures. We do not know that any infectious diseases can have been imported from America to European horses, as Europe has already every contagious affection that we possess. We do know, on the contrary, that France but a few years ago sent to America "dourine"; and we are not aware of any 90 days' quarantine to which horses are submitted.

The only justifiable excuse for the new protective measure is that the enormous increase of importation into France may interfere with the raising of horses in that country, and consequently constitute a national and public danger. According to statistics, it is stated that during the last six years American importations into Europe have been: For 1893, 2500 horses; 1894, 5000; 1895, 13,500; 1896, 25,000; 1897, 40,000, and since the beginning of 1898 more than 20,000.

It is gratifying to hear that before acting in the matter two governmental commissioners have been appointed to go to America to study the question at large.

A. L.

GET READY FOR OMAHA.

An event of more than ordinary import is to occur in September next, the outcome of which will have a great influence upon the immediate history of veterinary medicine in the United States. At the city of Omaha, in the State of Nebraska, the United States Veterinary Medical Association will convene in annual session on the 6th, 7th, and 8th of September, and every prospect seems bright for the most representative and truly national gathering of veterinarians that has assembled during the thirty-five years of its existence. On the successful outcome of this year's convention from the various standpoints of the quality and character of the deliberations, attendance, and general influence will be the justification of the effort to overcome the tendency toward a sectional organization instead of a national one, as its name implies. There can be no two opinions as to the gratitude which the profession of the union owes to the East for its tender nursing of the infant association during the trying period of its early years, and we do not believe that it will withhold the expression of its obligations. Its maturity having been reached, its development being robust and healthy, there seems to be no reason why it should not be sent forth to do what good it can—the object of its incubation, the cause of its nurturing, and the aim and ambition of its progenitors. In its early days there were but few veterinarians in the East and North, fewer in the West, and none in the South. The course pursued was the only possible one, and no other section can be blamed for withholding its coöperation, for there were no number of men to take part in its burdens and its glories. But now there have sprung up in the East, in the West, in the North and in the South a whole phalanx of brilliant and enthusiastic men, educated, devoted to the science of veterinary medicine, and who need the strong influence of the Association as much as she needs them among her list of members. The meeting place should be as nearly central as possible—equally accessible to every point of the national compass, and a divergence from this principle is an injury to the Association. The East, participating so con-

spicuously in the glorious history of the organization, should feel a pride in saying to the balance of the nation: "We have brought the weakling up to robust manhood; we now send it forth as a blessing to you all." And the West and the North and the South should feel great pride in the opportunities thus afforded them. Certainly the East will not be so pessimistic as to endeavor to control her meetings, her influence, and her government in a spirit of jealousy and selfishness, saying that as she was the bone and sinew of her young days, so she should keep it to herself by rendering it next to impossible for the profession of other sections to attend the meetings and participate in the proceedings.

Possibly no more central location could have been found than Omaha; surely no more enthusiastic welcome could be given her membership than will be extended by the veterinarians of Nebraska, and, assembling in that beautiful city during the Trans-Mississippi Exposition, with all its attractions and advantages in railroad fares and accommodations, the event will be doubly attractive. The notes which have from month to month appeared in the REVIEW relative to the developing programmes of the session and the committee of arrangements, bear positive evidence that the forthcoming meeting is to be one fraught with the greatest interest and pleasure to every phase of the membership. The trip from the East and North will be a most delightful one; every hard-working veterinarian is entitled to some vacation, and it is hard to conceive how it can be more pleasantly and profitably spent than by journeying to this rapidly developing section of our country and engaging actively in the deliberations of the national association. You owe it to your profession, your country, and yourselves. And we firmly believe that the wisdom of the choice of this conception of the location will be proven by the largest increase in membership that has ever occurred at any one meeting, unpropitious as the times avowedly are.

"TUBERCULIN, SLAUGHTER AND SANITATION IN THE ERADICATION OF TUBERCULOSIS," is the title of an extremely valuable and interesting article contributed to this month's REVIEW by that sterling observer and writer, G. N. Kinnell, of Pittsfield, Mass. It is the prosecution of such practical experiments and their collection and presentation which go to build up our pathological knowledge, and the profession must feel under a debt of gratitude to the author for his painstaking and complete data and deductions.

ORIGINAL ARTICLES.

TUBERCULIN, SLAUGHTER AND SANITATION IN THE ERADICATION OF TUBERCULOSIS.

BY GEORGE N. KINNELL, VETERINARIAN, PITTSFIELD, MASS.

As bearing on the question of eradicating tuberculosis from a diseased herd and of the competent disinfection of a tuberculosis-infected building, I beg to submit report of my experience in two cases, an experience which has stood the test of the past four years, and where the conditions which obtain to-day are to all appearances and in every probability entirely satisfactory.

First we will take the herd of Mr. W. D. Sloane, of Lenox. In December, 1894, this herd comprised the following animals: Mature milch cows, 22; mature bull, 1; young bull, 1; young stock (heifers ranging from six months to two years old), 11; total, 35. On Christmas Day, December 25, 1894, the twenty-two milch cows were submitted to the tuberculin test, and the temperature chart of the reactions obtained is herewith subjoined.

Chart of Milch Cows.

Herd Nos.

42	102	102.6	102	101.8	
*30	102.6	106.6	107.4		
34	102.125	102.4	102.4	102.4	102.2
*45	101.4	105.8	104.2	105.4	
*40	101.5	102.6	104.6	106	
*28	100.8	103.2	103.2	104.8	
*14	101	103	105		

<i>Herd Nos.</i>	<i>Chart of Milch Cows.—Continued.</i>				
44	101	102.6	101.8	101	100.8
39	101.25	101.4	101.4	101.6	102
* 4	100.8	102.4	102.6	104.6	
*25	101.4	104.2	106.2		
*22	101.25	104.2	106	106.2	
* 7	100.6	102.4	103.6	105.4	
*43	102.75	103.4	103.8	105.6	
19	100.6	102.4	102.6	102.8	102
*21	101	106.2	106.6		
*38	101.4	104.4	106.4	107	
17	101.6	103	102.8	101	101.6
37	101.2	102	101.8	101	
48	101.5	103.4	104.8	101	101
49	102	103	102.6	101	
*36	100.4	105	106.6	105.8	

The reagent used was the Tuberculinum Kochii of Libbertz, the dose used being two minims diluted with one per cent. solution carbolic acid in distilled water. The column of figures to the left of the above chart were the herd numbers of the cows, and these numbers will again be referred to further on in the report.

It will be noticed that those animals marked with a *, thirteen in all, gave decided reactions. Please note also that the diseased animals were in clumps or bunches. The worst diseased individuals were found in the centres of these clumps. The animals were condemned by the State authorities and killed. In every instance well marked tuberculosis was present, some of the cases being very bad indeed.

On January 20, 1895, all the young stock and both the bulls were tested, also five of the milch cows were retested, and the following is the charts of the temperatures obtained.

<i>Herd Nos.</i>	<i>Temperature Charts of Young Stock (heifers).</i>				
50	101.2	101.2	101	100.8	101.2
51	101	101.2	101	101	101
52	100.8	101.4	101.6	101.2	101.2
53	101	101.4	101	100.8	101
54	101	102	102.4	101.4	101.6
55	101.2	102	102	102.8	101.6
56	100.6	102	101.8	101	101.4
57	101.6	102.6	102.4	101.8	101.6
58	101.6	102	101.4	101.4	101.6
59	101.2	102	101.8	101.2	101.4
60	102.2	101.6	101.6	101.4	101.6

Temperature Charts of Bulls.

Young bull	101.6	102	101.6	101.8	102
Mature bull	101.2	103.4	106.2	106.8	

Temperature Charts of Retested Cows.

Herd Nos.

44	100.8	101.4	101.6	101.2	100.8
39	101.4	101.2	101.8	101.6	101.2
19	102	102	101.8	101.4	101
17	101	101.2	101.2	101	101.4
48	101	101.6	101.6	101	101

It will be noticed that the only animal to react was the mature bull. He was condemned and killed. The lesions found were quite extensive, and, in my opinion, were of at least two years' standing.

We had thus slaughtered thirteen out of twenty-two milch cows and one bull, making fourteen out of a herd of thirty-five head.

All of the heifers were sired by the diseased bull, which must have been diseased at time of service. The dams of these heifers are shown by the following chart, and by reference to the first temperature chart it will be seen that seven of these healthy heifers were born of diseased dams.

Chart Showing Dams of Heifers.

Dam of Heifer	No. 50	was cow	No.* 7	(Tuberculous).
"	"	No. 51	"	" No.* 21 (Tuberculous).
"	"	No. 52	"	" No.* 25 (Tuberculous).
"	"	No. 53	"	disposed of previous to test.
"	"	No. 54	"	" No.* 28 (Tuberculous).
"	"	No. 55	"	" No.* 30 (Tuberculous).
"	"	No. 56	"	" No.* 21 (Tuberculous).
"	"	No. 57	"	" No. 19 (Healthy).
"	"	No. 58	"	disposed of previous to test.
"	"	No. 59	"	" No. 37 (Healthy).
"	"	No. 60	"	" No.* 14 (Tuberculous).

Mr. William Griffin (manager for Mr. Sloane) being anxious to make the work as thorough as possible, gave me *carte blanche* to kill any of the remaining animals which I might think looked in any way suspicious of being diseased. Acting on this, we slaughtered the milch cows Nos. 17, 19 and 39. The two latter, Nos. 19 and 39, were found entirely clean and healthy in every way. In No. 17, on the other hand, we found

a bronchial lymphatic gland enlarged to the size of a duck's egg, and containing glairy liquid pus. There was an absence of the cheesy matter usually associated with tuberculosis and the walls of the pus cavity were thinner than we usually see in lymphatic glands undergoing tubercular suppuration.

It here devolves to say a few words on the arrangement of the stable where these animals were kept and on the steps taken to cleanse and disinfect it. While all the animals were kept under one roof, yet the building can best be described as consisting of two parts. That part in which the milch cows were kept measures 30 x 60 feet and the ceiling is 10½ feet high. The floor is of brick set on edge in cement. The windows, twelve in number, face east and west; they measure 3½ x 2½ feet and are placed within two feet of the ceiling. There are two ventilators, each three feet square. The ceiling is of narrow pine boards planed and varnished and the lining of the walls is of the same material. The stable is arranged for twenty-six cows, the animals standing in two rows facing each other with walks between them and behind them about five feet wide.

The young stock were for the most part kept in box-stalls, arranged in two rows and communicating with the cow stable by a five-foot passage way. While under the same roof they were, with the exception of the passage way, isolated from the part in which the cows were kept, and, although reared on their milk, never came in direct contact with them.

Cleansing and Disinfection.

All the remaining stock having been removed, cleansing and disinfection was proceeded with as follows:

(1) Dry brushing of the whole interior of the building.

(2) Scrubbing the entire interior with soap and hot water *ad libitum*.

(3) Saturation of the entire interior with an antiseptic wash made up in strength and of ingredients as follows: Bichloride of mercury, one ounce; glacial carbolic acid, twelve ounces; hot water (scalding), twelve gallons. This was applied copiously and forcibly with large garden syringes.

(4) The doors and windows being shut tight, the atmosphere was saturated with the fumes of burning sulphur for a period of two nights and one day.

(5) The doors and windows were then thrown open to the light and air and left so for a week.

(6) The place was dried, the entire woodwork sandpapered and submitted to two coats of hard varnish.

(7) And to all this I would say the work was done religiously and well.

In the bull pen there was an extra lining of heavy rough boards. These were removed and burned, but apart from this none of the woodwork was either removed or destroyed. In order to avoid danger of poisoning from the bichloride of mercury solution, the mangers were again washed out with simple warm water.

The animals were then taken back into the stable and the herd replenished with tested cows from the farm of Mr. W. K. Vanderbilt on Long Island. Since then the herd has been self-sustaining. The original young stock have, as they developed, been introduced into the dairy, and other young stock have been born and grown up to take their proper place among the milch cows, but during all these years, no symptoms or evidences of tuberculosis have developed or been found either among the original or among the introduced stock. This negative evidence must be admitted as of some value, but apart from it we have as the years went past been able to accumulate a large amount of positive evidence which is of much greater value as a proof that the herd is free from disease. Thus during the last three years several of the cows have been killed for beef, and inspection at time of slaughter failed to reveal any of the lesions of tuberculosis. In the month of September, 1897, seven of the milch cows died from or were killed on account of poisoning with white lead. In all these cases a careful post-mortem examination for the lesions of tuberculosis was conducted, but no lesions were discovered. The following table shows the animals that have been killed or have died :

Table Showing Disposal of the Balance of the Original Herd up to the Present Time.

Mature Cows.

- No. 42—Still in herd.
- No. 34—Killed for beef, healthy.
- No. 44—Not in herd, no record of what became of her.
- No. 37—Still in herd.
- No. 48—Killed for beef, healthy.
- No. 49—Sold to W. W. Law of New York.

Heifers.

- No. 50—Still in herd.
- No. 51—Died of lead poisoning Sept., 1897, not tuberculous.
- No. 52—Killed for beef, healthy.
- No. 53—Killed for beef, healthy.
- No. 54—Died of lead poisoning Sept., 1897, not tuberculous.
- No. 55—Died of lead poisoning Sept., 1897, not tuberculous.
- No. 56—Still in herd.
- No. 57—Still in herd.
- No. 58—Still in herd.
- No. 59—Still in herd.
- No. 60—Still in herd.
- No. 61—Sold, no record of what became of her.
- Nos. 51, 52, 54 and 55 were born of diseased mothers.

The second case I wish to point out was on a much smaller scale and will not take so long to relate.

In June, 1894, Dr. Henry Colt, of Pittsfield, had six cows and a six-months-old calf. The tuberculin test was applied and all of the cows reacted, the calf alone failing to do so. The cows were condemned and killed. Two of them proved to be unusually bad cases; one of these, a Jersey, was a mother of the six-months-old calf and was also pregnant at the time of slaughter.

The stanchions were removed and the floor, which was old, torn up and destroyed. The urine-soaked earth was dug up and removed. The interior was then brushed, washed and treated with the antiseptic wash previously mentioned. The ceiling and walls being of rough unplanned wood, were heavily washed with hot whitewash. The stable was left vacant and open to the sun and the air until the fall; when a new floor was put in and the stanchions, which had been washed and left out of doors all summer, were put back in place. The calf was taken back into the stable and has spent her winters

there ever since. She is now a nice plump four-year-old cow and on January 12th of this year was tested with tuberculin without giving any reaction.

This stable, arranged for five cows, measured $15\frac{1}{2} \times 14\frac{1}{2}$ feet, ceiling $7\frac{1}{2}$ feet, two windows, one north and one south, one ventilator one foot square; average cubic space per cow approximately 337 cubic feet.

Reviewing the history of these two cases we are confronted with a number of pregnant facts. Taking the Sloane herd these facts are :

1st. That by the aid of tuberculin fourteen diseased animals were eliminated from a herd of thirty-five.

2d. That eleven heifers and one young bull were all sired by a diseased bull.

3d. That of these eleven heifers seven were born of diseased mothers.

4th. That all of them were reared on milk most of which was drawn from diseased cows.

5th. That they never came in direct contact with the diseased animals.

6th. That notwithstanding the facts that all were sired by a diseased bull, that seven of them were born of tuberculous mothers, that all of them were reared on milk from tuberculous cows, and that all of them have been kept in a stable which was previously the home of thirteen diseased cows, that notwithstanding these facts we find at the end of four years that at least five of these eleven animals are absolutely free from tuberculosis and that in every human probability all of them that now remain alive are likewise free from this disease.

7th. Of the cows introduced from Long Island and placed in this previously infected place some have died and been found healthy and according to every appearance, and in accordance with every analogy, these that remain are likewise free from disease.

The lessons to be derived from the herd of Dr. Colt point exactly the same conclusions, and yet here we must recognize a very material and important difference. In the case of Mr.

Sloane, his stable was large, airy, well lighted, ventilated, had a water-tight floor, readily lent itself to cleansing and disinfection and was altogether from a sanitary standpoint well arranged.

The stable of Dr. Colt, on the other hand, was the very reverse of this. It was small, had insufficient cubic space, but little ventilation, no proper drainage, had pervious urine-soaked floors, was finished in rough timber, and from a sanitary point of view was badly arranged. Taken on the whole, it is not too much to say that it was considerably worse than the average Massachusetts cow stable. And, yet, in spite of all this and the fact that it was a badly infected stable, the evidence is that the means of disinfection were adequate and that the infection of tuberculosis was completely eradicated.

Reviewing the two cases as a whole, the immense preponderance of evidence is in favor of these conclusions.

That, by the judicious use of tuberculin, tuberculosis can be eradicated from a herd of cows.

That tuberculosis is not an hereditary disease.

That so far as calves are concerned the danger to them from the use of milk from tuberculous cows must necessarily be very slight.

And that, given an infected building, it is possible, at comparatively little cost, to make it entirely free from infection and a safe place in which to keep stock so far as the disease tuberculosis is concerned.

PARTURIENT APOPLEXY.

BY J. S LAMKIN, D. V. S., YONKERS, N. Y.

A Paper read before the Veterinary Medical Association of New York County, May 4, 1898.

Wm. A. Mowry said that "there's no lamp by which our feet may be guided but the lamp of experience"; but, although I have had some little experience with the disease in question, I do not feel at all competent to attempt to be a "guide unto

your feet and a lamp unto your path." The etiology of parturient apoplexy has called forth a variety of opinions from different authorities who have given the subject particular care and observation. Some consider it due to a specific element in the blood ; some to an accumulation of milk-producing elements in the blood, giving rise to fever and blood poisoning ; to an overloading of the system with blood, causing nervous disorders. Others, notably Professors Williams and Barlow, considered it a disorder of the sympathetic nervous system, while still a few others consider it due to a germ which is very tenacious of life, and may, like anthrax, be carried long distances in the hay or grain grown on infected soil.

While I am not able to give any irrefutable reason for "the faith that is within me," nor explain the workings of the effect of the cause to which I attribute the disorder, I feel that parturient apoplexy is caused by an enriched condition of the blood due to too high feeding, without sufficient exercise for some weeks prior to parturition ; and that in some inexplicable manner, this fullness of the system acting on the nervous system causes the phenomena presented in the disease. It is seen more often in finely-bred cows than among common mixed breeds under similar conditions. And in my experience, at least, is never seen in thin, poorly-fed animals, nor among cows that are out of doors all of the time and are fed but little grain.

In the West, where I was somewhat extensively engaged in cattle-raising some years ago, where thousands of cows are giving birth to their young every spring and summer, I never saw a case, although many of them were very fat at the time of parturition. I attribute this immunity entirely to light grain rations, when fed grain at all, and plenty of exercise. Even among ordinary farmers' cows of this and adjoining States, the disease is very rarely seen ; but wherever cows are highly fed up to, or near parturition, especially if they be finely-bred animals, the disorder is often present.

Like azoturia in the horse, it seems to arise from too much rich albuminous food, which under an exciting cause, not per-

fectly understood, generates a poison which produces the disease. Like azoturia, too, it is very rapid in its inception, the offspring showing no sign whatever of any disturbance previous to birth, while the mother may within ten or twelve hours afterwards, in quick cases, be down and unconscious.

The symptoms of parturient apoplexy are too well known to need any lengthy description here. There is generally a slight restlessness, with occasionally abdominal pains; stoppage of the secretions, then weakness of the posterior extremities, then paralysis, more or less marked and general. Extreme restlessness by this time, with great pain in the head, due to a congestion of the brain, deglutition and micturation difficult, if not impossible, then coma and death, unless a change for the better occurs.

My treatment of this disease has changed considerably of late, and I find myself more successful than formerly.

I have never bled any of my cases—so cannot say how it would act; but bleeding would seem to be indicated many times. Nor do I now give a “large cathartic dose,” as is generally advised in our text-books on the subject. The secretions have stopped or nearly so, as I have said, and it seems to me unnecessary to pour a quantity of medicines into the stomach to lie there and perhaps be changed in their action by fermentation and other changes going on there.

If tympany is present, as is sometimes the case, calcium sulphate I have found is the best remedy, shaken up with some little force through a canula into the rumen. Three or four ounces in as many quarts of tepid water, is my rule. To relieve the congestion of the brain and spinal cord, which is undoubtedly present, I use either cracked ice or ice-water, generally the latter, as it can be kept in place better if the animal is uneasy. Bind two large sponges upon her head and cover the body with warm blankets, and at least every half hour pour ice water into the sponges and squeeze a strip of woollen blanket out of the ice water and lay along the back and keep well covered with the blankets. Prop the animal up into as near a sitting posture as

possible, and keep her well bedded. It is one man's work to attend to her for the first few hours. Draw her water if she is not passing it and give frequent enemas of warm soapy water.

As to medicinal agents, I generally confine myself to two or three—aconite and nux vomica or strychnia and digitalis; but if the animal is very uneasy, I give chloral hydrate and bromide of potash, in six-dram doses each, as seems necessary. Two drams tinct. of aconite in same quantity of cold water every half hour upon the tongue and one grain sulphate of strychnia hypodermically every two hours, until there is a change for the better, is my rule. Aconite is called "the therapeutical lancet" and is certainly indicated in this disorder. If the heart is weak or unsteady, I give ten minims of fluid extract digitalis with the aconite. If not practicable to give the strychnia hypodermically, two drams tinc. nux vomica, given also with the aconite, may be substituted. Alcoholic stimulants come in as soon as there is a change for the better, but until the secretions are aroused somewhat not much can be expected of them. As soon as the animal begins to want to rise, a pint of raw linseed oil and four to six ounces of tinc. of aloes may be given. The enemas should be continued until the bowels operate naturally. Frequent milking is necessary, even if very little is obtained. In the administration of medicines, the greatest care should be exercised or some of it will pass into the trachea and thus into the lungs. Even if the animal seems perfectly sensible and can swallow somewhat, deglutition is often imperfect and I have found it a safe rule to use a piece of half-inch rubber hose to give all medicines, excepting the small quantities of aconite and nux vomica, until she can drink from a pail and even then they should be turned down very slowly. In the AMERICAN VETERINARY REVIEW of December, 1894, is an article by Dr. R. H. Harrison, of Atchison, Kansas, recommending a new method of treating this disease, which consists of one introduction of a pint of water at 100° F., containing ten grains common salt, into the jugular vein, in the upper third of the neck. This is to be done with a Dieulafay's aspirator to be had of Codman & Shurtleff,

of Boston, Mass. Dr. Harrison reports eighty per cent. of cures by this method, which would indeed be very gratifying. I have often thought of trying it, but have neglected sending for the instrument. If any one does do so, I hope he will report results.

The prognosis of parturient apoplexy must of necessity be very grave, before one can tell how his case is going. Even after the patient rallies from the first attack and is up and eating a little, she may relapse and die. My system of prophylaxis is, if in summer or when the animal is out to grass, to feed her nothing whatever for six weeks prior to calving and if to be kept up give only hay and three quarts of bran, wet up soft, night and morning for same length of time. Keep salt where she can lick it at will and keep her out of doors all of every day unless stormy. That "it is better to seek health in the fields unbought than to fee the doctor for a nauseous draught" applies well to the prevention of "parturient apoplexy" and even then, especially in winter, if the animal is fat, a pound of Epsom salts dissolved and given as one dose about a week before calving, will often avert this very serious trouble.

Now, I am sure that some of you gentlemen present know more about this subject than I do, and I would be very much pleased to hear your suggestions. That "we are never too old to learn" we all, I think, find out occasionally, and I would be glad indeed to hear the experience of others and get some points for future use.

I thank you, gentlemen, for your kind attention.

SUPPURATIVE CELLULITIS IN THE LIMBS OF CATTLE DUE TO STREPTOCOCCUS INFECTION.

BY VERANUS A. MOORE, M. D.

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In August, 1897, my attention was called to an interesting disease affecting the feet and lower limbs of cattle in certain parts of Herkimer County. The affection had received the local

designation of "foot rot," and, on account of its apparent contagiousness, it was viewed with much apprehension by the cattle owners of that vicinity. It was found, however, that it had not spread over a very large territory, but that several dairy herds had suffered quite severely. Unfortunately, it was not reported to us until the height of the trouble had passed, so that this article is based upon the examination of a few animals suffering from the naturally-contracted disease and upon the cases experimentally produced.

The manifestations of the disease were, within certain limits, uniform in all of the affected animals. Usually but one foot or leg was attacked, although there were numerous exceptions. The first symptom noticed was a swelling, which usually appeared in the lower part of the leg, most often in the pastern. In some animals it was said that the swelling was restricted to a small area, but often it extended up the leg to and even above the knee or the hock joint. There was evidence of pain and the animal became very lame. As the inflammatory process continued, the subcutaneous tissue became indurated, the skin thick and dry and eventually it would crack, usually, but not always, below the dew claws, and a thick creamy pus would be discharged. After discharging, the swelling subsided and the normal condition was rapidly restored. The extent of the swelling and the time necessary for the suppurative process and recovery varied in different animals, but as a rule from ten to fifteen days were required. The exceptions were largely in those cases where the inflammatory process extended down to the coronary cushion. In these there was more or less sloughing of the hoof, and it was in these cases that the disease appeared in its most serious form. So far as I learned all of the animals eventually recovered. A personal examination was made of five cases, which were in two herds on adjoining farms.

Case No. 1. A cow, 7 to 8 years old. The trouble was in the right hind foot. She had recovered from a severe attack in the right fore foot. There was still some swelling in the hind leg and the skin and subcutaneous tissue above the heel were much thickened. There were two cracks below the dew claws, from which, the owner of the animal said,

there had been a profuse discharge. At this time pus could not be obtained. Several small pieces of the infiltrated tissue were secured. From some of these agar tubes were inoculated at the time and the others were placed in sterile tubes and brought to the laboratory for further examination.

Case No. 2. This was in a cow, about six years old, in the same dairy. The left fore leg was just beginning to swell. There was evidence of pain and the skin from the hoof to the knee was sensitive to the touch. The temperature was normal, but there was indifference to food. This case was treated locally by Dr. Law, with recovery without suppuration.

Case No. 3. (Cases 3 to 5 were in the second herd.) This was in a cow, seven years old. The right hind leg was affected. The disease had already run about three weeks and for several days the animal had been under the care of a veterinarian. The cellulitis had extended up the leg to and above the hock joint and down to and over the coronary cushion. The hoof covering the heel had cracked and part of it had been removed. There was a large subcutaneous abscess above the heel, which was discharging through an opening or crack in the hoof near the middle of the bottom of the foot. It was stated that at first the pus was thick and of a cream color, but at this time it was thin and of a dirty brown tint. By means of pressure a considerable quantity of it was forced out, from which tubes of agar were inoculated and a few cubic centimeters placed in a sterile tube and brought to the laboratory.

Case No. 4. This was in a two-year-old heifer. The left hind foot was attacked. The leg was slightly swollen. There was distinct fluctuation over an area about 3 cm. in diameter, on the front of the foot and just above the hoof. The animal seemed to be well otherwise. Temperature normal and appetite good. The hair was clipped, the foot carefully washed and disinfected and the abscess opened. It contained about 5 c.c. of a thick creamy looking pus. Several tubes of agar were inoculated from this and the balance placed in sterile tubes for further examination.

Case No. 5. This was in a two-year-old heifer. The left hind foot had been affected, but at this time it had discharged, the swelling had subsided, and the abscess was practically healed.

The disease in Cases Nos. 3 and 4 seemed to resemble Panaritium,* the essential difference being in the extent of the inflammatory process. Until the specific cause of that affection is more definitely determined, and the extent of the lesions in-

* Möller. Speciellen Chirurgie, S. 849.

cluded within the possibilities of its etiological factor more clearly defined, the question of its identity or non-identity with the local infections here described cannot be answered. In both the disease seems to be due to local causes.

Bacteriological Examination.—As already stated, several agar cultures were made at the time of the examinations from the pus or indurated tissue from three of the cases. On the following day bouillon and agar tubes were inoculated and gelatin and agar plate cultures were made. In addition to these several cultures were made on special media from the material obtained in sterile tubes. Without entering into wearisome details, the results of these cultivations from the different animals may be summarized as follows :

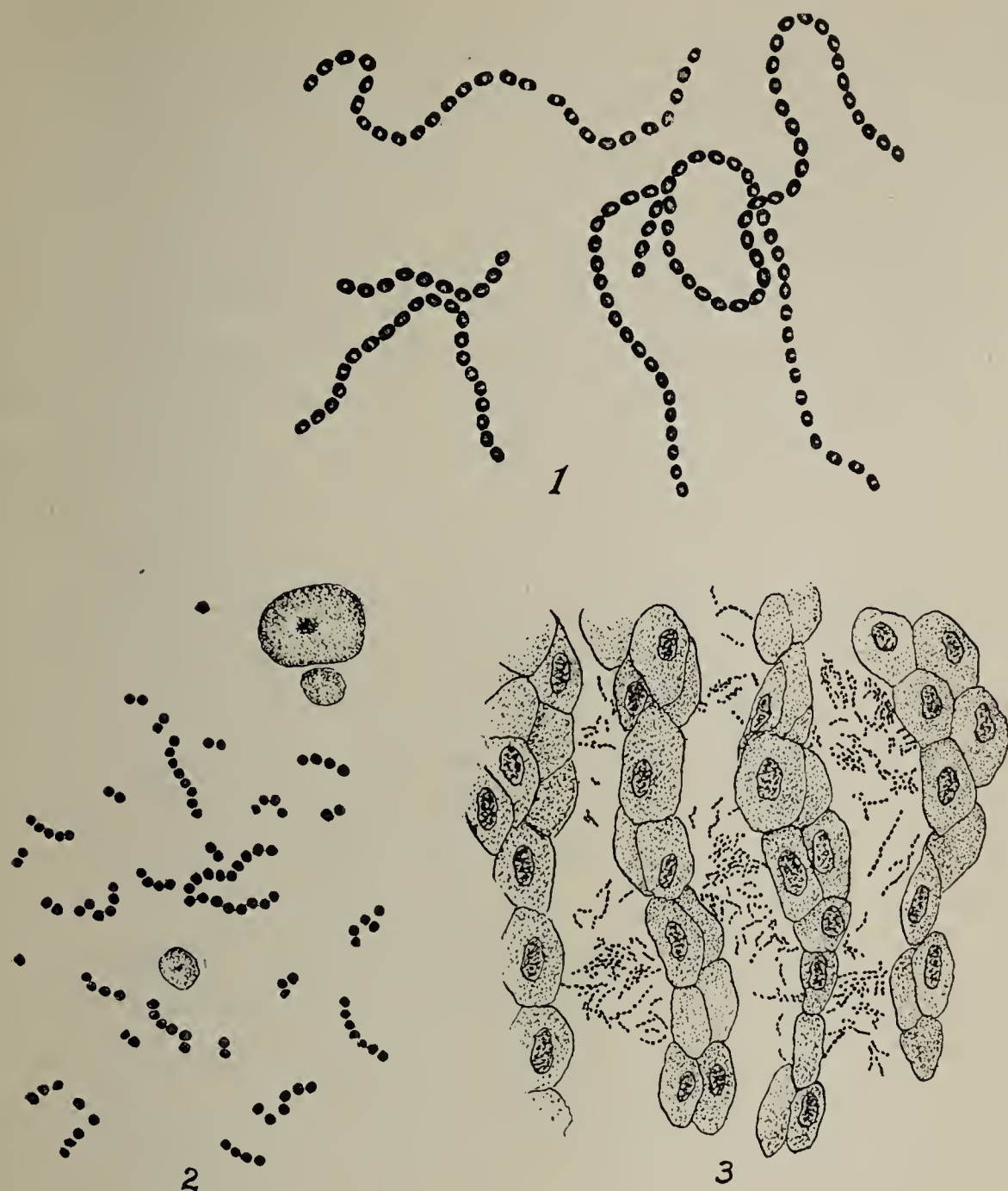
From Case No. 1.—A streptococcus and an undetermined micrococcus and bacillus.

From Case No. 3.—A streptococcus and several (about six) forms of chromogenic micrococci and bacilli. (The foot in this case had been wrapped for several days in oakum wet with some disinfectant.)

From Case No. 4.—A streptococcus which appeared in pure culture in most of the tubes. In three tubes *bacillus coli communis* was also present.

In the plate cultures in agar made from the material from cases Nos. 1 and 4 colonies of the streptococcus predominated. In those prepared from case No. 3 colonies of chromogenic micrococci were more numerous.

The culture of the colon bacillus was carefully studied in both its cultural characters and its effect upon animals, but it did not reveal any properties uncommon to that species. This, together with the fact that it appeared in the cultures from but one case, suggests that its presence was accidental and that it did not stand in any etiological relation to the inflammatory process. With the exception of the streptococcus, all of the other bacteria which appeared in the culture were common saprophytes which presumably had found their way into the open sores.



Description of Plate.

Fig. 1. A drawing of streptococci made from a cover-glass preparation from a fresh bouillon culture stained with alkaline methylene blue. Magnified about 1500 diameters.

Fig. 2. A drawing from a cover-glass preparation from the liver of a rabbit dead from inoculation with the streptococcus stained with alkaline methylene blue. Magnified about 1000 diameters.

Fig. 3. A drawing from a section of the liver of a rabbit dead from the inoculation with the streptococcus. (Same rabbit from which drawing Fig. 2 was made.) Sections cut by the paraffin method and stained with carbol fuchsin. It shows the *blood spaces* to contain a large number of streptococci. Magnified about 500 diameters.

The microscopic examination of cover-glass preparations from the pus taken from case No. 4 showed a streptococcus in short and long chains. In those made from the material from cases Nos. 1 and 3 there were in addition to the streptococcus several other forms of bacteria. The infiltrated subcutaneous tissue from case No. 1 was found to consist of round cell infiltration. The fresh preparations of the pus from the other cases (Nos. 3 and 4) revealed nothing unusual for purulent material.

Inoculation into Cattle.—In order to determine the infectious nature of the trouble, two cows were inoculated with the material obtained from cases Nos. 3 and 4. A small portion of the pus from each specimen was diluted in sterile bouillon and about 2 c.c. of the suspension injected subcutaneously just above the hoof in the left fore foot in each case. Swelling was noticed on the third day. It gradually extended up the leg to the knee joint. There was much tenderness and evidence of pain. The subcutis became indurated in the lower part of the leg and on the 10th and 12th days suppuration was evident. The abscesses were not opened, but a few days later they broke just under the dew-claws, near the place of inoculation, and discharged a considerable quantity of cream-colored pus, after which complete recovery soon followed. The streptococcus was obtained in pure culture from each of these cases.

A third cow was inoculated with a pure bouillon culture 24 hours old of the streptococcus obtained from case No. 4. The inoculation was made by scraping the skin on the right fore foot just above the hoof, and after removing the epidermis the culture was rubbed on the raw surface. Swelling began in three days and the symptoms already described followed in regular order. A subcutaneous abscess formed and on the 14th day it discharged. The streptococcus was obtained in pure cultures from the freshly discharged abscess. Recovery rapidly followed.

A cow was inoculated in the tail with a pure culture of the streptococcus with negative results.

The Streptococcus.—The cultures of streptococcus isolated from the different animals (cases Nos. 1, 3 and 4) were care-

fully compared in parallel cultures and found, so far as this method enabled one to determine, to be identical. The organism was a true streptococcus. Morphologically it grew in long chains in bouillon and agar. It stained readily with aniline dyes, but it did not retain all of its color when treated after Gram's method. Each coccus or segment seemed to be distinct. Many of them gave a decided polar stain, although this was not uniformly the case. In sections of the liver of inoculated rabbits it appeared in the blood spaces in large numbers and in long chains, but in cover-glass preparations they seemed to be quite broken up into shorter chains, diplococci and single micrococci.

In bouillon it grew in clumps or grayish masses, which settled to the bottom or sides of the tube if they were inclined. After several generations a more uniform cloudiness was imparted to the bouillon. Milk was not changed in appearance.

On agar the isolated colonies were about 1.5 mm. in diameter with a convex brownish centre surrounded by a thin spreading growth. It did not grow on potato and very feebly on gelatin. In alkaline bouillon containing 1 per cent. of the sugars ordinarily used (dextrose, saccharose and lactose) the reaction became strongly acid, but gas was not formed.* The streptococci were soon destroyed in the acids formed in these cultures. In the fermentation tube the growth was quite vigorous in the open bulb, but exceedingly feeble in the closed branch.

This organism was very sensitive to the action of disinfectants and it possessed a low thermal death point, an exposure to moist heat at a temperature of 55° C. for 5 minutes destroyed it. (These tests were not repeated.)

In rabbits it produced a rapidly fatal septicæmia, destroying life in from 36 to 48 hours. Guinea-pigs were not affected unless large doses were injected into the peritoneal cavity. Unfortunately, this streptococcus stopped growing very suddenly be-

* In this respect it conforms with the action of all the streptococci with which I am familiar. This power of the streptococci to break up the sugars forming acids without gas seems to be of value in differentiating doubtful streptococci from certain micrococci which often appear in short or longer chains.

fore I had extended its study sufficiently to positively identify it, and before the first results with disinfectants and the thermal death point had been verified. It agrees very closely with the description of *streptococcus pyogenes bovis* Lucet* with the exception that it is more virulent for experimental animals. This, however, cannot be considered of very much importance. Further, I have not been able to find distinctive characters or properties to differentiate it from *streptococcus pyogenes*. Additional investigations will be necessary to show that the streptococci producing suppuration in cattle and in man are separated by specific or veriatal differences.

Source of Infection.—Although this disease appeared to be of much importance in its beginning its early disappearance quieted the fear that the locality was invaded with a “contagious foot rot” and attention was directed to an inquiry into the source and manner of infection. Concerning this positive information was not secured. However, a few important conditions affecting the immediate environment of the animals were found to have been so closely associated with the trouble that they are quite suggestive. The cattle in the herds where the disease appeared were driven a considerable distance morning and evening through paths which were very muddy. As would be expected, the mud was heavily laden with fecal and decomposing vegetable matter. It was thickly sprinkled with stone of a flat, sharp, angular variety. It is presumable that the animals in wading through these places scratched their feet or legs slightly but enough to cause the infection of the organism which it is assumed was in the top soil. It was a noteworthy observation that the disease begun with a “rainy spell,” and consequently muddy paths and yards, and disappeared after the mud dried up. Previous investigations† have shown that delicate streptococci are sometimes present in the soil. The numerous recorded observations on this group of bacteria show that streptococci are not only widely distributed in nature, but also

* Annales de L’Institut Pasteur, VII (1893), p. 324.

† Bulletins No. 3 Bureau of Animal Industry, U. S. Department of Agriculture, 1893.

that they are frequently associated apparently as the etiological factor in various morbid processes. Their presence in inflammatory lesions leading to suppuration is quite noticeable.

The number of bacteria which have been found associated with suppuration in the bovine species is already quite large, but as yet streptococci seem to be the organisms most frequently encountered. Lucet (l. c.) has reported 52 cases of abscess in cattle which were examined bacteriologically. A list of the organisms isolated from these cases is appended.

Streptococcus pyogenes bovis.	in 9 cases.
Staphylococcus pyogenes bovis	in 2 cases.
Bacillus pyogenes bovis.	in 6 cases.
Bacillus liquefaciens pyogenes bovis	in 4 cases.
Bacillus crassus pyogenes bovis	in 1 case.
Streptococcus and staphylococcus	in 3 cases.
Streptococcus and B. pyogenes	in 4 cases.
Streptococcus and B. crassus	in 2 cases.
Streptococcus, staphylococcus and B. crassus.	in 1 case.
Bacillus pyogenes and bacillus crassus	in 1 case.
Bacillus pyogenes and bacillus liquefaciens.	in 2 cases.
One or the other of the above mentioned organisms	
with an undetermined species	in 14 cases.
with staphylococcus pyogenes albus of man	in 1 case.
with staphylococcus pyogenes aureus of man.	in 2 cases.

It seems from the present knowledge concerning the causes of suppuration in cattle that the importance of streptococci can not be questioned. This is of interest, as cattle are not especially susceptible to bacterial infection nor are the streptococci the most hardy of pyogenic organisms. It remains for future investigations to determine whether the various streptococci found in these lesions belong to a single species and if so to find in what respects it differs from *streptococcus pyogenes*. Unfortunately, Lucet does not point out the distinguishing features which led him to separate the pyogenic organisms found in cattle from those which had already been described from similar lesions in other animals and in man.

INTERESTING CASES

FROM THE SURGICAL AND OBSTETRIC CLINIC,
NEW YORK STATE VETERINARY COLLEGE.

BY W. L. WILLIAMS, PROF. OF SURGERY, ETC.

TREATMENT OF FRACTURES IN BIRDS BY RUBBER ADHESIVE PLASTER.

(962) Patient, a white Leghorn hen, æt. 1 year, had in some unknown manner received a complete simple fracture of the metatarsus at the commencement of the lower third. Displacement and mobility were well marked and prohibited the bearing of any weight upon the affected member.

The materials generally applied for the fixation of fractures being too bulky and heavy for so small a patient, recourse was had to the commercial rubber adhesive plaster. A strip of plaster $\frac{1}{2}$ inch wide was gently warmed and applied directly to the foot for a sufficient distance on either side of the fracture, in the form of a spiral bandage, each turn overlapping the preceding.

The plaster secured complete and permanent fixation, was easily and quickly applied, highly presentable in appearance, and gave the greatest possible comfort and ease of movement to the patient. The hen began using the leg naturally after a few hours, and although permitted the freedom of the poultry yard regardless of moisture, the bandage remained securely *in situ* until after the fracture had reunited.

AMPUTATION OF THE POSTERIOR LEG OF A SOW.

(583) Patient, a sow of common breed, had four weeks previously given birth to eight pigs, which she was still suckling. A few hours before being presented at the clinic she had been attacked by a bulldog and the right tarsus severely mangled, the bones of the tarsus being separated from each other and from the tibia, fibula and metatarsals, the foot being held to the leg chiefly by the posterior tendons and ligaments, the wounds being thoroughly befouled with dirt.

Other treatment than amputation was evidently useless, and accordingly the patient was chloroformed, the limb disinfected, and owing to serious mangling in the inferior tibial region amputation was made by student K. just beneath the head of the tibia. Two lateral flaps were prepared, the chief arteries ligated, the tibia and fibula were sawed through, the flaps sutured carefully, the patient was reloaded into a wagon and returned at once to the owner's premises and placed with her pigs.

On the following day the patient appeared dull, but the wound looked clean, was free from swelling and no injury had occurred to cause hæmorrhage.

On the fourth day the owner reported slight swelling of the stump and the tearing out of one or two sutures, but the patient was brighter, feeding and caring for her pigs, and was moving about some.

On the eighth day the patient was running about on three legs without apparent great inconvenience, and in 15 days the wound was practically healed, the sow in good health and flesh and caring for her brood of pigs apparently none the worse for the injury and loss of a leg.

CASTRATION OF CRYPTORCHIAL BOARS.

(420) Patient, a boar pig, æt. 4 weeks, both testes retained within the peritoneal cavity. Securing the pig on the right side with anterior part of body depressed, an opening was made by student F. in the left flank as if for spaying, the index finger introduced and the left testis grasped, withdrawn from the abdomen and excised, the finger again introduced, passing between the abdominal floor and intestinal mass until the right testis was encountered and removed in the same manner as the left.

(421) A boar pig of same age as 420, monorchid, the normal testis having been removed by the owner. The abdominal testis was removed by student M. in same manner as 420.

(432) A four weeks boar pig with right testis retained in abdomen, operated upon by student H. in same manner as preceding.

(171) A Chester white boar, æt. about 8 months and weighing about 200 pounds, both testes entirely retained within abdomen. Operation through left flank, the size of patient requiring the introduction of the entire hand into the abdomen in order to reach the right testis. Both testes were normal in size but soft and flabby. All four were castrated without anæsthesia, the abdominal incision was closed by skin sutures only, usual antiseptic precautions were observed and all recovered promptly without incident.

HYDROPS AMNII IN A COW.

(556) Occurring almost solely in the cow hydrops amnii presents an interesting problem in etiology, being so far without explanation.

The patient in question was a Holstein cow of medium size, 7 months pregnant, and had apparently gone well until 14 days prior to examination the owner noted unusual distension of the abdomen and was led to suspect twin pregnancy. She had not been grained but had plenty of grass and fodder and was in fair condition, and believing twin pregnancy to exist and parturition nearing, the owner began feeding a moderate amount of grain. The abdomen continuing to enlarge the owner became suspicious and gave one pound mag. sulph. without producing any change in the constantly increasing abdominal tension, the patient finally becoming unable to rise without assistance, though when up looked bright and ate and drank normally. Her inability to rise seemed more due to the excessive intra-abdominal weight than to any weakness of the patient.

Being called to examine the patient it required the aid of six men to get her on her feet, when she stood and walked well, though as if overloaded. Percussion and rectal exploration revealed hydrops amnii, and a trocar passed into the amnion through the right flank showed the fluid to be perfectly colorless and odorless, as usually observed in these cases. Twenty gallons of it were allowed to run out through the canula. The os uteri was dilated, the membranes ruptured and the fluid left free to escape, the patient being now left for 24 hours, hoping

there would be sufficient gradual dilatation of os to permit of easy extraction of the foetus, which was at the date of examination still alive and vigorous in its movements.

On the following day the patient could rise with less assistance and had shown some slight labor pains; the os was moderately dilated, the foetus dead and emphysematous and required considerable force for its extraction, after which the cow seemed much exhausted. A stimulant was administered, and the patient placed in comfortable quarters. Although much of the amniotic fluid had escaped through the os, a great deal remained, the long continued over distension having apparently produced uterine paralysis.

Three hours after removal of the foetus the cow died from exhaustion.

The autopsy showed a very thin chorion and uterus, the body of which was practically obliterated, the hydrops having been confined to the two cornua.

This change in relation between uterus and cornua constituted an interesting feature in the case. When dilating the os at the time of the first examination, directly in front of the os, centrally located and perpendicular, was a thin band, the nature of which we failed to determine. The autopsy showed this to be the point of juncture between the two cornua which instead of being located several inches in front of the os intern, as in the non gravid or normal gravid uterus, was in direct contact with the os. The uterus was intact in every part except slight lacerations at the cornual juncture, which, however, were of no significance. There were no notable deviations from the normal observed in any organs, except the large flaccid uterus.

In a herd of 10 dairy cows the owner had lost one previous to the case here recorded, undoubtedly of the same affection and but two days prior to our visit.

The results in this case indicate that the proper method to pursue, is to complete at once the dilatation of the os and evacuation of the uterine contents by physical force, and not leave this to be accomplished by labor pains after rupturing the mem-

branes. Such a plan involves much time, labor, and patience, as the cow's os is so firm that it can not be rapidly nor easily dilated, but the uterine walls having been so over distended lose their power and fail to accomplish the purpose sought, while the flaccidity and fluidity tend to rapid and intense infection, with death of the foetus and absorption of toxic substances.

Siphoning out the fluid after rupturing the membranes would doubtless aid in relieving the uterus and possibly aid it in contracting upon the foetus. After the foetus is properly secured by cords it would seem that the recumbent posture would be best for delivery, facilitating the exit of fluids and also the foetus from the paralyzed uterus.

ASCITES IN A PREGNANT EWE.

(858.) An aged Shropshire ewe at full term of pregnancy had for some weeks shown a progressive distention of the abdomen and for a few days prior to presentation at the clinic had shown inappetence, debility, and difficulty in progression, owing largely to the immoderate distension of the abdomen. Hydrops amnii was at first diagnosed and an effort made to relieve the difficulty by rupturing the supposedly affected membrane through the os uteri, but the effort proving fruitless the patient was destroyed, and the autopsy showed that the fluid had been intra-peritoneal. The peritoneal fluid was pale, slightly turbid, and contained numerous shred-like masses of dirty grayish lymph floccules.

The intestines, mesentery, omentum, lungs, and liver were thickly infested with the degenerate capsules of the *Æsophagostoma Columbianum*. It would appear that the unusual number of these caseated nodules in the liver were the probable cause of the ascites, as a result of their interference with the hepatic functions.

The differential diagnosis between ascites and hydrops amnii in the pregnant ewe offers peculiar difficulties. The heavy abdominal tunic excludes abdominal taxis, the rectum is too small for safe exploration per anum, and the vagina fails to

offer special facilities. The exploratory trocar might give identical results in either affection, the foetus in each case would tend to float upward, would generally be alive and vigorous, while percussion would reveal the same dullness in one case as in the other.

We find no record of hydrops amnii in the ewe, yet it is not impossible, as it has been recorded in the goat, though chiefly affecting cows.

The ewe will, in all probability, withstand laparotomy as well as the cow, in which case this one means for positive diagnosis is readily available, when if it proves to be ascites, the fluid can be drained away through the incision, while if hydrops amnii the incision can be closed, the os uteri dilated and artificial delivery brought about.

AMPUTATION OF OVARIES AND GRAVID UTERUS IN A BITCH.

(227) Patient, well-developed Collie bitch, æt. 8 months, procured by the present owner three weeks prior to presentation at the college clinic, was presumably non-pregnant. She had been fasted for 12 hours preparatory to spaying, which was undertaken by student H. by the flank method without anæsthesia. Difficulty was experienced in bringing up the uterus or other parts of the internal genitals and it was soon discovered that the uterus was gravid, requiring strong tension to lift the cornua up and out through the incision, when it was found that each cornu contained four foetuses, which with their envelopes measured $2\frac{1}{2} \times 4$ inches each, the eight foetuses in the now exposed cornua representing a mass of near $\frac{1}{2}$ gallon. The round ligaments of the ovaries were ligated with catgut, another ligature being placed about the cervix uteri, the entire mass, ovaries, cornua, uterus, and broad ligament were removed and the flank incision closed by deep sutures. On the following day the patient looked bright, but lay quietly and refused food; on the second day the general appearance was better and appetite fair, the animal taking some milk, and on the third she seemed quite well, moving about freely, had a good appetite and was apparently convalescent. The wound showed slight but unim-

portant infection and the patient was permitted to be removed, after which recovery progressed without incident.

COMPOUND FRACTURE OF METATARSUS IN A DOG.

(133) The patient, an adult Collie, had engaged in a fight with another dog about three weeks prior to presentation, during which compound fractures of the right metatarsals were produced at the lower third, probably by a bite. The owner failing to secure recovery the patient was submitted for examination, and it was found that the fractured ends of the bones moved freely on each other, while they communicated with the exterior by two fistulæ opening on the median side of metatarsus, from which considerable pus was discharging.

The injured member was fixed by means of plaster of Paris bandages, the fistulous openings being marked by a cork, which was later cut out and the fistulæ dressed with solution of carbolic acid, followed by powdered iodoform, the dressing being retained by means of a bandage with equitable pressure. The dressing was repeated once daily for six days, at which date the suppuration had virtually ceased and the patient was discharged, with directions for the continuation of the dressing, and recovery progressed rapidly without further incident.

FEEDING ANIMALS.

BY T. CURTIS MICHENER, V. S., COLMAR, PA.

Read at the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1898.

This subject was selected, not that feeding animals is any especial part of the veterinarian's duties, but quite as important for him to understand as the stockman whom he serves. More than this, his client has the right to expect of him sound counsel upon any of the manifold problems that arise in the healthful and economical feeding of all animals and poultry.

His practiced eye should be quick to detect any deviation from the perfect thrift that marks the animal when at its best, for the purpose for which it is being fed, and be able to pre-

scribe the necessary diet to correct defective conditions instead of giving condition powders. However, they act admirably when given together. The basis of all intelligent and successful feeding is in the recognition of the underlying fact, that the various feeds are composed of the same elements as the bodies they nourish. In other words, vegetation incorporates, from soil and air, the materials that the animal body is about to appropriate. But the proportions are seldom right.

The water, ash, protein, fat and carbohydrates of the various forage plants and cereals, are in widely varying proportions and degrees of digestibility, so that it is possible to starve an animal while giving it all it is able to eat; to greatly curtail the production of milk by a badly balanced ration, or to so diminish force as to render an animal worthless for work. To feed for bare maintenance is one thing, for rapid growth and full development, a better thing; to feed a milk cow, at a loss, an easy thing; to feed a horse, up to his full capacity for work, a grand thing. While pedigree is important, skill in feeding makes the successful breeder. We have different kinds of feeding, scientific feeding, the right materials, in exact proportions, for desired results; good feeding, derived from the experience of one's self and teachings of others; haphazard feeding and ignorant, careless, ruinous, criminal feeding. But our live stock interests, the greatest of any people upon the globe, demand that we understand and practice the business for best results. Science is the lever, experience the hand that applies it, love and admiration for our animals the inspiration and profit accruing, the consummation devoutly wished for. The science of feeding is exact, so far as determining the relative proportions of the digestible protein to the carbohydrates and fat, for different purposes, under the same conditions. Animals are kept under such widely different circumstances, as to shelter, ventilation, exercise and work and have formed different habits from influence of environment, making it hard to lay down inflexible rules. The analysis of the different foods at hand, a careful study of the condition, purpose and characteristics of the animal

enables the skillful feeder to acquire exactness and proficiency. I will enumerate the essential principles of the art of feeding, in the order of their importance, but must omit detail, from want of time. As before intimated, feeding is reduced to an exact science and knowledge of the composition of animal bodies, and of the various feeds that are to sustain, make growth, produce milk or wool, repair waste, perform work and lay on fat, must be familiar and by the use of figures, which won't lie, the problem is solved.

The materials must be so selected and combined as to constitute the balanced ration for the purpose. Animals are soon fed and bred into a fat-forming or beef habit, which destroys their adaptability for the dairy or race track. Hens fed exclusively upon fattening foods cease laying. The hogs of our section fail to fill the market demand, too much corn fed, too little exercise, too much lard. The chemical constitution of the feed is the chief factor in giving fineness and hardness of bone and muscular tone and action. Too little attention is paid to the amount of water in the feeds. We see animals being nearly physicked to death upon succulent foods and others badly impaired by constipation caused by hard, dry food. The right condition is maintained by proper combinations of feeds.

Stock needs root, silage, wetted feed or mash. The amount of needed water varies with the purpose of the animal and cannot be supplied by drink alone. The time of cutting, the perfection of the drying or curing process, goes far in determining the palatableness, the digestibility, and the danger of undergoing fermentation in the digestive tract. Kiln-dried finely-ground cereals are the safest and most healthful, mixed with silage or made into a mash with cut fodder or hay. From contact, I know the average farmer and feeder is not educated up to these points. Can he obtain the needed knowledge from his veterinarian? The problem is sometimes difficult because of the limited material at hand and the price of such stuff as would balance up the ration, being so high as to make its use unprofitable. Then the question is, what is *best* under the cir-

cumstances? Having determined this important matter the *quantity* to be fed comes next. Medium or average quantities for different ages, weights and purposes should be known, but individual capacity, natural and acquired, must be found out. Only liberal feeding is profitable. Under and over feeding are mistakes. The varying values of feeds in the manure must not be lost sight of when among the farmers.

It is nice to be a skillful mechanic and construct useful things or to understand the running of machinery, but such are not to be compared to the man who can grow and fatten animals, just right; or to him who can run a herd of dairy cows so as to get all from them that is to be had and avoid indigestion, garget and concomitant dangers and losses. It is done by regularity in watering and feeding, avoiding exposure or sudden changes in diet. Gradually increasing the feed upon new animals until their capacity is determined; then keeping a sharp watch for the first indications of surfeit and withholding until the keen appetite returns.

The condition of the atmosphere, the temperature, the amount of fresh air entering the stable and the exercise, all influence the appetite and digestion and are taken into account by the practical feeder. Some feeds may analyze well but are not relished well by stock, and individual animals have their likes and dislikes the same as persons, which opens a field for observation and tact.

The addition of salt makes feed more palatable and digestible. A milk cow should consume two ounces per day mixed through the feeds; a work horse one ounce. Cheap sugar and molasses can be profitably used and various condiments. We should not allow the patent feed and medicine man to monopolize these things.

EXTRACT FROM A BUSINESS LETTER.—“Here in Tennessee it [the REVIEW] is about the only means I have of meeting monthly my fellow-veterinarians, as in Tennessee we are few and far between, and the REVIEW is a source of great interest to me. Yours truly, P. D. Bray, Columbia, Tenn.”

ADMINISTRATION OF DRUGS BY TRACHEAL INJECTION.

BY A. JOLY, D. V. S., WATERVILLE, ME.

Read before the Maine Veterinary Medical Association, April 13, 1898.

The administration of drugs by the respiratory passages has been of frequent occurrence. The evaporation of water in which odorant plants have been infused, fumigations have been daily practised in our profession, and with good results, but in 1817, as hazard would have it, two students of the Veterinary School of Lyons made the following experiment: The aforesaid students, in order to kill a horse under their care, injected with a syringe a quantity of "aqua pura" in the trachea. During the experiment, one of the professors, Mr. Gohier, came upon them, and, after asking them what they were doing, told them that he was under the impression that the horse must be suffering badly. They answered that they had already injected eight quarts without seeing any ill effect. Then the professor gave them permission to continue the injection until the horse died, which happened half an hour later. The total amount of water injected had been thirty-two quarts.

Immediately after the horse's death the autopsy was made, with the following results: The lungs were inflated, and were very heavy, though no water came from the lobes. From this examination Mr. Gohier concluded that the respiratory canals were quick absorbents, and consequently that we could therefore administer drugs by that passage. Although Mr. Gohier recommended this *modus operandi*, no more experiments were made until 1828, when Dr. Lelang treated many cases of glanders by injecting a quart of water, having in solution $\frac{1}{24}$ its weight of chloride of sodium. By this treatment he obtained quite a number of ameliorations, but not a single cure.

Forty years later Dr. Perosino, professor at the Veterinary School of Turin, injected into the trachea a number of solutions of nitrate of silver against several cases of chronic bronchitis with complete success. This method was once more

abandoned on account of the danger of tracheotomy, its complication, and also as a question of economy, the horse being put to a long rest, and, lastly, there were other safer methods of treatment.

Dr. Levi continued this method of administration by the means of a hypodermic syringe, adjusted to a trocar, thus preventing tracheotomy. Dr. Levi's experience has shown us that most of the drugs can be administered by the trachea and produce the same effect as though introduced in the digestive passages, with the exception of purgatives, which give no results whatever. Dr. Levi recommends these injections only in cases where a sudden change of the organism is needed because of the activity of the respiratory mucous membrane due to its large area. This gentleman has obtained quite a number of cures in cases of glanders and farcy by injecting $1\frac{1}{2}$ drachms of iodurated sodium, according to the following directions :

Metallic iodine, 2 parts.

Iodide of potassium, 10 parts.

Distilled water, 100 parts.

Increasing the dose $\frac{1}{2}$ drachm every three days until 5 drachms are given in a day.

Dr. Levi also treated a case of pulmonary emphysema of one year's standing and obtained a cure in two days, with the following injection :

Sulphate of atrophine, 1 centigramme,

Aqua pura, 2 grammes,

twice daily.

He has used with success the following injections against chronic bronchitis :

Essence of turpentine, }
Sweet oil, } āā grammes iij

in one dose daily, during twelve days.

Against typhoid fever, an injection of $1\frac{1}{2}$ drachms of bisulphate of quinine, once daily, brought the cure in seven days.

Quite a number of other cases have been treated by Dr. Levi by this method of administration with success.

As far as my experience is concerned, I have a case of epistaxis to communicate to you, which took me eight hours to

stop. Three years ago I was called to see a horse which was bleeding from one nostril, and had been bleeding for ten hours. I first injected in the nostril cold water, made cold application over the head, administered a dose of acetate of lead, tincture of iron, plugged the nostril with absorbent cotton and perchloride of iron. A few minutes later the blood came from the other nostril. I then practiced tracheotomy and plugged both nostrils. About one half hour later the blood ran out from the tracheotomy tube. I removed the tube, the cotton from the nostrils and went three miles to get some fluid extract of ergot, of which I injected 1 c.c. in the trachea; the blood continued to drop; half an hour later I made another injection of 1 c.c. and ten minutes after the hæmorrhage stopped. I waited over an hour, prescribed tonics for two weeks and my patient recovered.

In concluding this paper I will say that the method of administering drugs by the trachea is another means which may in certain cases be advantageous and may render great service to the veterinary profession.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

DID THESE HORSES HAVE CEREBRO-SPINAL MENINGITIS OR HYDROPHOBIA?

By C. C. CRANE, V. S., Akron, Ohio.

A contractor in this city owning about thirty horses, also owned a bulldog that acted strangely for two or three days, then seemed to develop hydrophobia. Nothing is positively known that the dog bit any of the horses, but he could have done so. The dog was killed on New Year's morning. Since then three horses have died. First I was called, but being away, another veterinarian diagnosed the case as brain trouble. He did not tell me the temperature nor the pulse, but the man that took care of the horse told me the animal was down most of the time, but would get up when given medicine. The last five hours the horse lived he would snap and bite, but did not die on his

feet. He seemed to be paralyzed. He lived about thirty-eight hours.

On Feb. 3 a second horse was taken sick ; did not eat first day, but worked. Occasionally the driver would notice the horse bite at neck-yoke and at other horse. The next morning as the barn boss was feeding the other horse, before coming to the one referred to, it began to show all the symptoms of hydrophobia. I was called early. All the symptoms I could get were a temperature of $103\frac{1}{2}^{\circ}$, pulse could not get, respiration normal when not excited, but very rapid when I irritated it by making motions in front or by punching sides with an old broom. If standing in front of him, he would spring at you, bite the stall, its front legs and sides, but would not offer to kick at any person or object that passed behind. When water was offered he would plunge his nose into the pail and act as though having spasms ; would froth at the mouth, keep ears moving backwards and forwards, but had full control of hind legs ; could not swallow food nor water ; would stand over, and get up, or obey any command given it, but kept getting more frantic. In the afternoon he was shot ; no post-mortem.

On Feb. 10th another horse was taken. Could get close to this one. Temperature $102\frac{1}{2}$, pulse 49, but in half an hour was 64, but during that time about 150 people had come to see the horse. In one hour after, pulse 59, temperature same, pupil of eye dilated very large, having head in dark corner of stall. I lit several matches within six inches of the eye, and held them close to the eye and could not notice any difference in pupil ; horse would not move a muscle or seem to care when match was lit ; would back up, turn around, go ahead at the command of anyone present, moving ears same as No. 2 ; could not swallow ; in fact, showing all symptoms of No. 2. Was killed in the early morning of the 13th. Before being killed got down and could not get up again. The owner thinking the horse dying, had one of his men hit it in the head with an ax. I took the brain and spinal cord from the last horse and have sent them to Dr. H. M. Bail, State Veterinarian, at Columbus, Ohio.

Now, my opinion of the cases is that the horses suffered from cerebro-spinal meningitis, instead of hydrophobia, as some seem so sure.

WHAT WAS IT ?

By W. F. DERR, V. S., Wooster, Ohio.

On December 6, 1897, Dr. M. C. McClain, of Jeanesville,

Ohio, telephoned me to meet him in consultation on a case of a bay mare, Norman breed, 7 years old, that he had been treating for some time, but was receiving no benefit from his treatment.

The history of the case was given by Mr. Otis, the owner. She had done her usual amount of work on the farm during the summer and fall, and being a large and strong animal was kept at work regularly. She did not seem to lose any flesh until late in the fall, when he consulted Dr. McClain about the case, and for which the doctor prescribed tonics, alteratives, etc.; for some derangement of the digestive organs. She was kept under this kind of treatment for several weeks, but was found to lose more flesh with all the food she was consuming, which was a fair amount of oats, corn, and some ground food, with good hay; in fact, the owner said she was fed better than while at work. The doctor had also changed his treatment several times, but with no better results; had also, in the meantime, made an examination of the urine, which proved to be normal and to have the normal specific gravity.

At the time of my seeing her she was standing with front feet back and hind feet forward, as if to balance herself, the position of laminitis of the hind feet; her coat looked well and smooth; eating all that was given her, but was greatly emaciated. I made a careful examination of her fæces and urine; the respirations were normal and pulse 80, strong; temperature 103.8°.

Had her taken out of the barn; her walk was weak and somewhat staggering in the hind extremities, but after a few steps to all appearances walked all right. Examination of her fæces proved that the feed was thoroughly digested. As she had been feeding on corn at the time for several days there was but little assimilation of food, and a physical examination absolutely revealed nothing. I, therefore, told the owner that I could not make a diagnosis and that my prognosis was unfavorable; that I thought she would die in a few days. She, however, lived a week, the doctor still giving her some treatment.

Dr. McClain made an autopsy of the case, and says that he made a careful examination, but failed to find anything abnormal; also had the brain and spinal cord examined microscopically, which still failed to reveal the cause of the wasted and emaciated condition.

Probably some of the readers of the REVIEW may give us some light on the case from the history as given above.

FRACTURE OF THE MAXILLA IN A DOG.—METHODS OF
SPLINTING.

By FRANCIS ABELE, V. S., Quincy, Mass.

A boy was "knocking flies" with a bat and ball. A greyhound tried to catch the ball on the toss up. He got it, but at the same moment caught the force of the bat on his inferior maxilla. There was a compound transverse fracture with displacement of one ramus. Some hæmorrhage from the mouth. There was inability to bring the jaws into apposition. Traction set the ends in place and at once the dog could move his jaws. applied gutta-percha between the rami on inferior surface of jaw. Under this was a wedge shaped piece of belt leather conforming to inferior outline of the jaw, and fitting up to the neck. Punched holes to carry tape, at ends to go over neck; half way, to go over muzzle, in front of eyes; and just back of canines to go over teeth. Made a strap leather muzzle to go over all. Fed egg and milk with a syringe. Five days later he could open his mouth and lap when muzzle was off. Union had commenced, as evinced by his trying to rub his jaw on the ground, showing the itching feeling. On the tenth day he could eat soups, wanted to yawn whenever muzzle was taken off. Removed splints and kept on only muzzle. There is a clean smooth union of the ends.

A pup six weeks old had displaced fracture of tibia at union of shaft by epiphysis. Bandaged with two small skivings of leather for splints, with silicate of soda. In one week bandage loosened and came off. Pup could use the leg. Put on another, however, but I wanted to show the rapidity of union in so young an animal.

[NOTE.—The above interesting report of fracture of the inferior maxilla reminds me that some years ago a valuable collie was brought to me with the identical history as given Dr. Abele. The difference was that the fracture in this case was longitudinal, extending from the genial surface to between the incisor teeth and rendered compound by the mucous membrane being lacerated from movements of the fractured bone. A neighboring dentist made a rubber cast of the buccal surface and a gutta-percha sling was fitted to the external side, which retained the fractured parts in apposition until union occurred. My experience in this case leads me to the conclusion that only the great intelligence and obedience to his master of this animal rendered a favorable termination possible. Few dogs would permit such a method.—R. R. B.]

THE May issue of the *Journal of Comparative Medicine* was devoted largely to affairs veterinary in New York State, page after page being devoted to pleasant personalities.

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

INCARCERATED (?) SCROTAL HERNIA.—Under this name Mr. E. Morrison relates in the *Veterinary Journal* the case of a four-year-old stallion which presented all the evidences of scrotal hernia: colic, rolling on his back when he was relieved, absence of borborygmus, swelling of the testicular region, on the left side. Rectal examination revealed the strangulated condition of the intestines at the internal abdominal ring. After an anodyne drench, the animal was thrown and the hernia reduced by taxis after some difficulty. A bandage of elastic cotton webbing was placed on the scrotum to remain on for a few days. The animal made a complete recovery, but, notwithstanding the warnings of the surgeon in attendance, the owner having again used the horse for stud purposes, he had a second and aggravated attack of his trouble—the hernia was double. Death arrived twelve hours after the first manifestations. Castration was not performed in the first instance, as the owner objected to it.

MALIGNANT ADENOMA OF THE STOMACH OF A HORSE [*By R. B. Freeman, F. R. C. V. S.*].—This is the case of a hunter, which during a severe attack of laminitis manifested peculiar abdominal symptoms, which made it supposed that there existed some greater trouble, a supposition already expressed on previous occasions by Prof. Williams. The animal grew rapidly worse and was ultimately destroyed. The stomach was examined by Prof. Williams and the diagnosis of gastric complications confirmed, which under the microscope revealed the presence of an adenoid cancer.—(*Vet. Journal.*)

TUMORS IN THE LATERAL VENTRICLES OF A HORSE.—Mr. A. N. Munro, M. R. C. V. S., records this case, which he first was justified in considering as one of stomach staggers, with the ordinary manifestations of brain disturbance (pressing the head against the wall of the stall, attempts to push forward, peculiar carrying of the head, etc.) He relieved his patient with a 7-drachm dose of aloes, and enemas. A week later he had another similar attack, also relieved with the same treatment. A third return of the disease made the attendant diagnose a cerebral tumor; the horse was destroyed. At the post-mortem two symmetrical tumors were found lying over the lateral ventricles; they were pedunculated, oval and about the size of a hen's egg. Microscopic examination revealed that their nature was that

of fibro-psammoma.—(*Vet. Journal*.) [It would be interesting to know if this horse had ever exhibited the ordinary manifestation of difficulty in backing or of immobility, which is frequently present with tumors of the ventricles.—A. L.]

RUPTURE OF THE STOMACH IN THE HORSE.—Can a horse work for several days with the muscular coat of the stomach partially ruptured, is the question asked by Mr. W. G. Dixon, M. R. C. V. S., in the *Veterinary Record*, after relating the case of a horse which, after a day of hard and heavy work, went off his feed and had slight attacks of colic. These passed off and returned for several days and on the ninth day a more severe attack occurred, which carried the patient off. At the post-mortem the stomach was found “ruptured to the extent of about eight inches and to all appearances the muscular coat must have been ruptured for several days.”

RUPTURE OF THE FLEXOR PERFORATUS.—Mr. C. Pierce, in the *Record*, tells of the case of a mare which received a kick on the back of the os calcis, midway between its point and the head of the metatarsus, making a small wound and completely severing the tendon of the flexor perforatus. At various times portions of the protruding tendon had to be amputated, until in all seven and a half inches were cut off, as it was very difficult to keep the wound under control. This at last was to a certain extent obtained, in preventing the flexion of the hock. “The hip was setoned and the hock-joint blistered.” The hock being thus fixed, as it were, the divided extremities of the tendon became adherent to the surrounding parts, and the superficial exuberant wound treated according to indications. Recovery took four and a half months.

AMPUTATION OF THE PENIS—COMPLICATIONS — RECOVERY.—The case of Mr. C. Pierce, M. R. C. V. S., in the *Veterinary Record*, is certainly interesting, as telling of complications that have occurred after amputation of the penis by the process of inferior incision of the urethra with suture of the reflected tube to the stump. In this gelding, the author, after operating for a case of paraphymosis, had returned his patient in good condition after ten days; he was summoned two weeks later to the same animal, which he found in great pain and unable to urinate. The animal was cast and a fluctuating swelling was found in the sheath—a large abscess, which was freely opened. The catheter could not be introduced, and to relieve the animal, it was necessary to open the urethra under the anus between the two ischial tuberosities. A catheter was passed by

this opening, downwards in the urethra and came out at the cicatrized opening. This was allowed to remain at first, and after a few days only introduced morning and evening; little by little the perineal opening closed, the whole treatment extending over two months.

INJURY TO THE TONGUE [*By M. R. C. Twing*].—The interest of this case brings out two important points, the tendency to rapid recovery of lacerations of the tongue and the great advantage of the use of the tongue-suspensory. A mare had received an injury to the tongue: the tip of the organ was protruding, the frænum torn; a transverse wound, an inch deep, penetrated the muscular part; this wound was about opposite the second molar and severed quite one-third of the muscles. It was necessary to cast and chloroform the animal to attempt the stitching of the wound; and this was so far back that to reach it and bring the tongue out it was necessary to pass a skewer transversely through the organ above the wound and over this a tape. Continuous suture of carbolized string was applied and the tongue placed in a suspensory to keep it back in the mouth. On the second day the animal was permitted to eat a few oats. A small piece of the tongue (the tip) sloughed off on the fifth day, and, as the author said, this might have been avoided if he had applied the suspensory at the first visit he made; this was late in the evening and the animal was so restless and irritable that only an attempt at treatment had been carried out and it was only the next day that proper interference could be applied with the animal cast and chloroformed.—(*Vet. Record.*)

EXAMINATION OF HORSES FOR SOUNDNESS.

HAS THE SELLER REDRESS AGAINST A VETERINARY SURGEON WHO CONDEMNS HIS ANIMAL?—CONTRARY CERTIFICATES DO NOT PROVE AN INTENTION TO DO INJUSTICE, WHICH MUST BE THE BASIS FOR LEGAL ACTION.

The following correspondence was received too late for insertion in the May REVIEW, but we present it in the present issue because the matter has achieved considerable notoriety in the metropolitan district, and also in deference to the wishes of our correspondents. The question raised by Mr. Robbins is one of great importance to veterinarians, and upon which there cannot be two constructions. We are decidedly of the opinion that upon the evidence submitted below he has no cause for action

whatever, as he brings forward no proof that Dr. Ackerman intended to do his horse or himself an injustice or an injury. Proof is lacking that Dr. A. was wrong in his conclusions in regard to the unsoundness of the mare, though the preponderance of evidence is against him. If it were conclusively shown that the mare was sound by the evidence of agreed-upon experts, the question of the *intention* of the examiner to give the buyer an opinion at variance with his honest belief, is still to be proven. An attempt to defraud the seller by the submission of a certificate or opinion different from the convictions of the examiner must be established. No such evidence is produced; but, on the contrary, Dr. Ackerman states in his letter to the buyer that he did not know who the seller was, and therefore could not have acted maliciously nor prejudiciously. The correctness of Dr. A.'s conclusions does not enter the question of redress; any examiner is liable to err, and if everyone who examined horses had to pecuniarily stand behind his opinion few veterinarians could be found who were willing to undertake such a task at the prevailing fees. If it were possible for Mr. Robbins to obtain a money indemnity for a real or imaginary injury in such a case as this, what would become of those examiners who pronounce a horse sound? The animal is sound to the best of his knowledge and belief *only*. And under the evidence Mr. Robbins' horse was unsound to the best of Dr. A.'s knowledge and belief, although sound to the best of the knowledge and belief of the other examiners. If the examiner believed the horse unsound and gave a different opinion he would have committed a criminal offense; but if his conclusions were based upon his honest convictions he gave the only decision admissible.

LETTER OF TRANSMISSAL.

BROOKLYN, April 26, 1898.

Editors American Veterinary Review:

GENTLEMEN:—As I am in sympathy with Mr. Robbins in the enclosed matter, and as he is a well-known horseman in this city and a patron of mine, the subject being interesting, I hope you will find room in your May issue for it.

Yours truly,

L. McLEAN.

LETTER FROM THE SELLER.

BROOKLYN, March 26, 1898.

Editors American Veterinary Review:

GENTLEMEN:—Through the medium of your journal will you have

the kindness to give your opinion upon the case mentioned in the enclosed statement?

The mare was sold by me as sound to Mr. Miller, and rejected upon Dr. Ackerman's certificate. Being impressed that the animal was sound, I had her examined by three reputable veterinary surgeons, who pronounced her sound, as per their several enclosed certificates.

Query:—Dr. Ackerman having pronounced the animal "unsound at both ends," and that upon a "superficial examination," have I any redress in the matter as against Dr. Ackerman?

This is not of interest to myself alone, but to your profession at large, and your opinion in the matter will greatly oblige,

Yours very truly,

CLARENCE H. ROBBINS.

58 Sterling Place, Brooklyn, N. Y.

DR. ACKERMAN'S LETTER TO THE BUYER.

BROOKLYN, March 8, 1898.

Dear Mr. Miller:

In reply to your letter of yesterday I would say that your request on Sunday was that you had a very gentle horse you wanted my opinion as to "whether he was a suitable horse for you, up to your weight, etc."

In reply to that, the horse was brought out and I made an examination as to his conformation, gait and last, but not least, a superficial examination as to his soundness.

After looking him over and seeing him move I said to you as the horse stood quiet, "I do not think he is up to your weight; he is too narrow-chested and barreled." I said, "See, you can see his knees trembling now," which they were while we stood looking at him. And I do not consider his gait a safe one for a saddle horse, especially to carry a weight, as he crossed his front legs too much and therefore likely to trip or stumble.

As far as his soundness is concerned, I said just as little as I could, but I will say that he wasn't sound at either end, and I will leave it to any three or five reputable veterinary surgeons to examine the horse without knowing anything about the case at all, whether he is sound or not. At the time of my examination I did not know the horse belonged to Mr. Robbins, and I did not care who he belonged to. You employed me and that is as far as I am ever interested. I try to render an honest opinion and protect the interests of my clients without doing the horse any more injury than the necessities of the case call for.

E. B. ACKERMAN, D. V. S.

CERTIFICATES OF OTHER VETERINARIANS.

BROOKLYN, March 6, 1898.

This is to certify that I have examined this day, at the request of Mr. Clarence Robbins, a clipped mare, stands about 15.3, rising seven years old, docked, with banged mane. White star on forehead; two white fetlocks behind, and with the exception of two small splents, which in no way interferes with her usefulness, I give it as my opinion that she is sound.

L. MCLEAN, M. R. C. V. S.

STAPLETON, N. Y., March 7, 1898.

This is to certify that I have this day examined for Mr. C. H. Robbins, a bay mare about $15\frac{3}{4}$ hands high, 7 years old, docked tail, white hind fetlocks and star in face, and to the best of my ability I find said mare sound.

JAMES MCKEE, V. S.

NEW YORK, March 4, 1898.

I certify that I have examined for Mr. C. Robbins, bay mare 15.3 hands high, seven years old, and that she is sound. Blemishes: Small splint, hypertrophied glands.

Remarks:—I had this mare jumped and driven; in fact, gave her a severe test.

(Signed)

H. D. GILL,

*Member of the Royal College of Veterinary Surgeons, London, and
Professor of Veterinary Surgery in New York Veterinary College.*

(Reprinted from *New Albany Medical Herald*, for April, 1897.)

ESSENTIAL REQUIREMENTS OF A MODERN ANTI-SEPTIC.

BY ROBERT C. KENNER, A. M., M. D., LOUISVILLE, KY.

Seventeen years ago the entire world was aglow with the strides made in the domain of surgery by the introduction of antiseptics. It caused many good surgeons to believe that surgery would have an entirely new future. But now, after a thorough trial, antiseptics have come to be considered in their true light. We have come to regard antiseptics as indispensable, and their field of usefulness is clearly understood by the profession. When antiseptic surgery first was advocated by Sir Joseph Lister, he held many views which he soon abandoned as worthless. He operated under a carbolic acid spray. This he soon found to be useless, and he did not long depend upon carbolic acid as an antiseptic. In order to bring out the central idea of this paper—the requirements of a modern antiseptic—let me go over the most prominent antiseptics which have claimed the attention of the profession. The first antiseptic which in recent times gained the confidence of the profession was carbolic acid. This agent, from the fact that it was the one used by Lister, came to be depended upon all over the world. Its reign of favor however did not last long, as it soon came to be found to be an irritant and a poison, capable of doing a great deal of harm. When large surfaces were treated with carbolic solutions often patients died of carbolic acid intoxication. It is impossible, in many cases, to prevent a result like this, and many surgeons can give some sad experience along this line. Again, when all danger of causing carbolic acid poisoning was rendered impossible, it has been found that

the agent was an irritant to such a degree that wounds were rendered unhealthy or made to heal more slowly, than when they received no antiseptic at all. Again, it was demonstrated by a great many investigators that carbolic acid was not fatal to all pathogenic bacteria, and, therefore the agent has come to be laid aside as far as any of the purposes of a modern surgical antiseptic are concerned. After carbolic acid had come to occupy this place, we find corrosive sublimate to have gained a most widespread acceptance at the hands of the profession. This widespread acceptance is due to the fact that corrosive sublimate is positively fatal to many and most all of pathogenic bacteria. Over a hundred years ago Pringle, in an array of tests to demonstrate the value of antiseptics, found that carbolic acid would more quickly prevent or deter sepsis than any other agent. Pringle's work, however, was on other lines than ours. Yet he found out much that has since his day been rediscovered. Corrosive sublimate to-day may be said to be on the decline. In fact, few well informed surgeons will now employ it at all. The reason for the decline of carbolic acid in favor is that it is very poisonous and a most potent irritant. Possibly no drug is a greater irritant. One of the first things which caused corrosive sublimate to begin to decline was the fact that one of the leading surgeons pointed out that it would, when brought in contact with divided tissue, form an albuminate over all the surface of the wound, and that this would prevent the healing by first intention, and very often it would cause suppuration. We need have care, too, in using corrosive sublimate that we do not allow it to be used over extensive surfaces. If there is but a small amount absorbed, we shall find our patient with symptoms of poisoning. Again, in employing corrosive sublimate, it is necessary to bear in mind that it is easy to get it too strong. Many serious accidents occurred from this cause. Again, when we use corrosive sublimate, we find that it cannot be used with safety as a spray. For these reasons corrosive sublimate is a most dangerous antiseptic, and its going into disuse is for the good of the profession.

Iodoform has been long popular, but is now being relegated to the shades of disuse. This is so because this drug has a most disagreeable and objectionable odor, and it also produces cases of poisoning. For these reasons iodoform has gone practically out of employment. But iodoform is a powder and cannot be brought into a solution, and, therefore, should it be non-poisonous, it would not be applicable in a large number of cases.

The requirement of the modern medical man for an antiseptic is not supplied, as we have seen, in any of the agents above mentioned. My opinion is, that we have in hydrozone the strongest antiseptic known to the medical profession, and it is now employed extensively. It is three times the strength of peroxide of hydrogen, U. S. P. officinal, and it is in no sense an irritant or a poison. It can be taken internally, as in cases of gastric catarrh and dyspepsia, causing fermentation, and as an intestinal antiseptic, without the slightest danger of producing poisonous results, or without the least danger of producing irritation. One of the greatest sources of benefit which we derive from this agent is the antiseptic effect which it produces in throat diseases. Hydrozone diluted half and half with water is the best remedy for tonsillitis. This sprayed against the tonsils when an attack is in its incipency will in every case abort it. It should be sprayed thoroughly against the tonsils every fifteen minutes or half an hour until the pain and difficulty of swallowing has been dissipated. But this need not be continued longer than four hours with this frequency. After that every two hours will suffice, and generally not more than six or eight hours are necessary to effect a cure of tonsillitis. But the best effects of hydrozone will be seen in diphtheria. Here its employment will bring us good results by rendering the parts antiseptic and limiting the affection. It is claimed by the best observers that if the nose is sprayed in attacks of diphtheria we will have no false membrane in the nose.

But this is not all. As an injection in the strength given above, it gives the best results in leucorrhea and gonorrhea in females. It is above all remedies for the cleansing out of abscess cavities. It will never cease to bubble as long as there is any pus in the cavity. In nasal catarrh, in ozena and all inflammation of the mucous membranes its action is that of a most powerful antiseptic. In other words, it begets absolute cleanliness, destroying all pathogenic germs, and renders in the diseased structure an absolutely healthy condition.

No remedy equals it in carbuncles. Here it destroys the pus and core, and causes the diseased structure to take on a healthy action.

We may, therefore, not hesitate to claim that this antiseptic meets the demands of the physician and surgeon more nearly than any other agent of its class at their disposal.

TELL your fellow-practitioner about the REVIEW.

CORRESPONDENCE.

MATRICULATION IN THE VETERINARY SCHOOLS OF NEW YORK.

Editors American Veterinary Review:

DEAR SIRS:—As your May issue quoted the article from the *Turf, Field and Farm* on "Veterinary Schools in the State," I beg the courtesy of your pages to correct some inadvertencies into which the writer of that article had fallen, and which were set right in the same paper in the number for April 29, 1898. As the matter is now, by your May issue, placed before the veterinary profession it is important that it should not be left in a form which is likely to prove misleading.

In carrying out the provisions of the law, which demanded a full high school course, representing 48 counts, the Regents did not demand the subjects named as obligatory in the newspaper article. Excepting the 8 counts in English which are demanded of all candidates, they allowed the fullest liberty in choosing from the entire range of high school studies. As indicated in the Regents' examinations hand-book, it seems as if the candidate might take 38 counts in English alone, and the remaining 16 counts might be taken in arithmetic, geography, drawing and other simple subjects without a single foreign tongue, or hard scientific study. The rule acted on by the Regents in the past year has been to accept pass cards for *any* 48 academic counts.

It is perfectly true that hitherto certain veterinary schools in America have admitted students with practically no preliminary examination. But the men who were unable to have taken such preliminary examination are handicapped for life unless they can overcome their deficiency by hard work in the future.

When a veterinarian has been wanted to undertake scientific work, as in agricultural schools and experiment stations, the choice has almost invariably fallen on one who has a bachelor's degree, or at least what the New York law demands for matriculation in a veterinary college. The following culled from the official list serves to illustrate this:

Illinois, D. McIntosh, V. S.; Michigan, G. A. Waterman, V. S.; North Dakota, W. C. Langdon, D. V. S. (3) In which the education was not more apparently than the veterinary college education.

South Carolina, W. E. A. Wyman, D. V. S., post graduate course; Massachusetts, J. B. Paige, D. V. S., post-graduate in

Europe; Ohio, D. T. White, D. V. S., post graduate in Europe. (3) Supplemented American veterinary college education by post graduate studies.

Alabama, C. A. Cary, D. V. M.; J. F. Connor, D. V. M.; Iowa, W. B. Niles, D. V. M.; Mississippi, J. C. Robert, D. V. M.; Texas, M. Francis, D. V. M.; Virginia, E. P. Niles, D. V. M.; T. S. Roop, D. V. M.; Washington, S. B. Nelson, D. V. M.; Iowa, R. A. Craig, D. V. M.; Connecticut, N. S. Mayo, D. V. M.; Delaware, H. S. Eves, D. V. M.; Ohio, J. G. Boyd, D. V. M. (12) Matriculated in a State College and pursued a longer course, of 3 or 4 years.

Indiana, A. W. Bitting, B. S., D. V. M.; Maine, F. L. Russell, B. S., V. S.; Maryland, S. S. Buckley, B. S., D. V. S.; Iowa, M. Stalker, M. S., V. S.; Oklahoma, L. L. Lewis, M. S., D. V. M.; Kansas, Paul Fischer B. Ayer, D. V. M.; Arkansas, R. R. Dinwiddie, V. S., M. D.; Minnesota, M. H. Reynolds, V. M., M. D.; Missouri, J. W. Connaway, M. D. C., M. D.; Vermont, F. A. Rich, V. S., M. D.; Washington, D. C., D. E. Salmon, D. V. M., F. R. C. V. S.; A. M. Farrington, B. S., B. V. S.; C. F. Dawson, M. D., D. V. S.; Nebraska, A. T. Peters, D. V. S., Berlin graduate. (14) Have medical or college degree in addition to the veterinary one.

Louisiana, W. H. Dalrymple, M. R. C. V. S.; New York, J. Law, F. R. C. V. S. (2) Degree of the Royal College of Veterinary Surgeons, England.

Summary.—Degree of common American veterinary college, 3; college degree in addition, or State college matriculation and prolonged study, or medical, or English veterinary degree, 31.

To a man proposing to enter on the study of veterinary medicine such a showing must be suggestive. If he would acquire a standing in his chosen profession, he must step out of the old ruts and put himself in relation to the modern movement.

Europe has long recognized this truth, and hence the veterinary profession in Europe stands much better with the Government and people than does the profession in America. In my paper before the Associated Faculties of Veterinary Colleges last August, at Nashville, this point was brought out clearly, but I may summarize it more shortly for this letter. All the European veterinary schools demand an elaborate matriculation examination; in five cases Latin is obligatory, and in several, one other language in addition to this, and the native one.

Then the professional studies in three European veterinary schools extend in different cases, from three and one-half to five years, of at least nine months each, and it is a very common thing for the student to take an extra year because he cannot accomplish the work in the time prescribed.

If we are to learn anything from the experience of the Old World, and the demands of the New for scientific veterinary work, the lesson would seem to be unquestionably that our average American veterinary college has lagged behind and is failing to fulfill the demand of modern medicine and of our immense live stock industry. The domestic animals furnish as many different genera in America as in Europe. They suffer from the same diseases; or if we lack one or two that are common in Europe, we can furnish at least a corresponding number that are peculiar to America. We yield to no European country in the numbers or values of our live stock. Why, then, should the guardians of their health and of the public health be one whit less accomplished or efficient than those entrusted with the same duties in Europe?

Who is to benefited by condemning America to a low veterinary standard? Certainly not the owner of valuable live stock, who has the first right to consideration. Certainly not the public health, which will suffer in ratio with our neglect of the sanitation of our flocks and herds. Certainly not the New York veterinarians, who will be doomed to compete with the aliens coming from the schools outside, which continue to move on the old lower plane.

The *Turf, Field and Farm* says the "veterinary colleges of this State are being strangled by the action of the Regents." It is the schools alone, then, that are to obtain the benefit of this cramping and dwarfing of the veterinary education of the State. If this were true, it might be fairly questioned whether a school has a right to profit at the expense of the great live stock industry, of the public health, and of the veterinary profession. But the dread of the schools is founded on a fallacy, and the sooner they can bring themselves into line with the full requirements of the New York law, the sooner will they enjoy the return of a full tide of prosperity, which will know no ebb.

The argument advanced for the lower class education would logically carry us very much further on the downward track. To obtain the existing New York law we had to recognize all existing practitioners, and thereby at once swelled the ranks of New York veterinarians to ten times their legitimate profes-

sional numbers. If we would accommodate our education to this state of things our college curriculum would be promptly reduced to a farce.

Again, with inferior requirements we simply invite from without the State the graduates of colleges educated on a still lower plane than our own. We injure the live-stock industry, and incidentally we undermine our own schools as regards both their efficiency and their profit. In the past our New York schools may have in a measure supplied the cities of Greater New York, but they have done comparatively little to furnish veterinarians for the inland cities and the great country districts. By adopting the full legal requirements for matriculation and graduation they would open up a new field for their graduates, which has hitherto been practically closed to them, and incidentally they would confer a great benefit on New York stock-owners.

It would not be an extravagant estimate to place the veterinary practitioners of New York, graduates and non-graduates, at 1000. On an average the practitioner will not remain in the active field for over 25 years. At this rate there would come a demand every year for 40 graduates in addition to those called for to do the higher class of work in other States. This would give ample assurance of support for one good veterinary college in the city of New York, even if it could only secure one-half of the total number of students. With a four-year course it might well mean 100 in attendance at each of two colleges.

The falling off in the number of students entering veterinary schools has not been confined to New York, but had set in all over the country before the passage of the New York law. It has a deeper reason, therefore, than the recent revoking of that statute. It makes it harder, however, for the old private schools to bear up under the general depression. The temporary reduction of the matriculation requirements to 24 counts may be needful to allow the New York school, formed by the coalescence of the two old ones, to tide over the period of trial, and as I stated at our meeting in Albany, I would not say a word in opposition, yet I cannot but consider it unfortunate that a full measure of the legal requirements could not be maintained. Time will tell, and I would not wish to prophesy evil, but it seems to me that even the 24 count requirement will drive students out of the State in large numbers, and it will

open the door to large numbers of graduates from alien colleges who can meet the 24 count requirement. Thus we will suffer alike in the number of our graduates, in their quality, in the restriction of the field for their practice, and in the advantages that we can offer to the New York stock-owners. By sustaining the New York statute, on the other hand, to the fullest extent to which this may be possible, we would open to our colleges a new career, higher and better than ever before, and secure at the same time a better sanitation of our herds and markets.

Dr. Schwarzkopf has touched on various vital points, in terms similar to those that were so strongly urged at our Albany meeting, and these should not be lost sight of in adjusting ourselves to the present and future. The two schools should unite to form one strong one, and this should sacrifice its independence for the prestige and the guarantee of high class work that will come from its amalgamation with a first-class university. The "livery stable type" of the school, and I would add of the matriculant, must be left behind, and we may hope for a more extended official recognition, and that better places may speedily open for the accomplished graduate. At present much of the legitimate work of the veterinarian is in this State left in the hands of laymen, or of medical men, who make no pretension to a knowledge of comparative pathology, and the only excuse is the low standard of education of the veterinarian. Let us raise that standard to the level of that required of the medical man, and the attempt to stop round holes with square pegs must cease and the sanitation of man and beast will be greatly advanced.

Respectfully,

JAMES LAW.

SOCIETY MEETINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

In the absence of the President and Vice-President, the association was called to order May 4th by the Secretary, at 8.45 P. M., at the Academy of Medicine.

The Secretary asked the members to appoint a Chairman to conduct the meeting.

It was then regularly moved and seconded that Dr. Gill act as Chairman *pro tem*. Carried. Dr. Gill thereupon took the chair and proceeded with the regular order of business.

The following members responded to roll-call: Drs. C. C. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Delaney, Ellis, Gill, Grenside, Lamkin, Machan, MacKellar and O'Shea.

The minutes of the previous meeting were read and approved.

Reports of Committees.—Dr. Gill, Chairman of Board of Censors, stated that as a quorum of that committee was not present they could not take action on important business in hand; therefore they had no report to offer to the meeting.

Dr. Gill reported for the Ways and Means Committee, in the absence of their chairman, that Dr. Lellman will read a paper at the June meeting on "Multiple Sclerosis of the Brain and Spinal Cord of the Dog," and a second essayist will be procured for the same meeting.

Judiciary Committee (Dr. O'Shea, Chairman) reported that the Governor had signed the jury bill and it is now a law. This report brought forth the applause of the members present.

Moved and seconded that the reports of the various committees be accepted. Carried.

Reading of Papers.—Dr. J. S. Cattanach read a paper entitled "Economy in the Practice of Veterinary Medicine," as follows:

Mr. President and Gentlemen:

The subject which I have selected to read before you this evening is "Economy in the Practice of Veterinary Medicine." It ought to be an interesting one, and I fear that I cannot do it justice, having been more than usually busy for the last two months, and have not had the time to devote to the paper that I ought to have had. I will, however, endeavor to bring to your notice some of my observations and experiences during a continuous practice extending nearly to forty years. By using the word "economy" I do not mean to convey that I advocate the purchasing of your drugs in "job lots," or at a bargain counter, but I do hope to advocate a method by which you will be positive that the medicines which you administer to your patients will be pure, unadulterated and according to the Pharmacopœia of the United States, or the pharmacopœia of whatever country you may select.

If the drug does not contain its full active properties, the practitioner does not get the expected result, and may have to give repeated doses to obtain that result. It surely would be economy to have the drug of its proper strength to start with, so that the one dose would suffice.

I presume that each of you gentlemen have your own pharmacy, and have a selection of medicines such as you are likely to require in the general routine of your practice. I shall not try to name the various ingredients which you are likely to have, but they are sure to be a goodly number. Now, gentlemen, are you sure that your drugs are chemically pure and made according to the Pharmacopœia? I mean the tinctures and other compounds. Did you make them yourself, or did you buy them already made? If you bought them already made, you are not sure that they are pure and made according to the Pharmacopœia. From my experience, it is important that the veterinarian should be capable of judging as to the genuineness of a drug from its general appearance, smell, etc., which can be accomplished to a great extent by reading up the Dispensatory. It describes each drug minutely, but there are many drugs, such as tinctures, ointments and other compounds that cannot be so judged. I, therefore, advocate the propriety of the veterinarian manufacturing everything that he possibly can, instead of purchasing it already manufactured, especially the more expensive preparations, that are more liable to adulteration.

The retail druggist would never think of purchasing at the wholesale house any preparation that he could manufacture himself, for the simple reason that he could not be certain of the genuineness of the compound; whereas when he makes it himself, he knows exactly what it contains, and can depend upon its efficacy. So with the veterinarian when he makes his own preparations, he can depend absolutely upon their thorough efficacy.

I shall call your especial attention to a few of the drugs that are extremely liable to adulteration. One of the most so is opium. There is no drug coming to this market that varies more in quality than that of gum opium, its quality depending on the percentage of morphia that it contains. The various kinds principally brought to this market are Turkish, Egyptian and East Indian. Smyrna gum opium yields from 16 to 21 per cent. of morphia, according to quality. Egyptian gum opium yields from 5-19 to 11-45 per cent. of morphia. Indian gum opium yields from 5 to 7 per cent. of morphia. So that Smyrna opium is just three times as strong as East Indian opium.

The United States Dispensatory directs that tincture opii should be made from Smyrna gum opium and is the standard tincture as recognized by the medical profession for prescriptions, as it then contains the full active properties of the drug. Tinc-

ture of opium made from East Indian gum opium would contain just one-third the active properties of that made from the Smyrna opium, or, in other words, one ounce of landanum made from Smyrna opium is equal to the three ounces of laudanum made from East Indian opium. Enormous quantities of this inferior opium is brought to this market, and I have no doubt a great proportion of it is used in the manufacture of the tincture, and sold to veterinarians. I say sold to veterinarians, because the druggist, as a rule, would consider it good enough for a horse, when he would not dare to use it in compounding the prescription of the family physician.

I manufacture all the tincture of opium that I use in my practice, and am very careful in selecting the best Smyrna opium for that purpose. I can make tincture of opium according to the Edinburgh Pharmacopœia in twenty-six hours. The formula is as follows: Take of opium dried, six ounces; rectified spirit, 40 ounces; water, 40 ounces. Digest the opium in the water near a boiling temperature for two hours, break down with the hand, strain and express; macerate the residue in the rectified spirit for twenty-four hours, then strain and express strongly; mix the watery and spirituous infusions and filter, when it is ready for use. The tincture thus made is as it ought to be, and can be depended upon. Be sure that you get the Smyrna gum opium. I have here a very good specimen of the drug. One of the peculiarities of Smyrna gum opium is that when you break it open, you find tears or what looks like small globes of water in its substance. I would also recommend that you make all the Majendi's solution that you use. It should contain sixteen grains of the alkaloid to the ounce of water. If you make the solution yourself, you know whether or not it is the proper strength, and can depend upon it.

Aconite is a drug that I have used extensively in my practice, and continue to use it in all acute cases of high temperature. I mean the tincture of aconite root. I used to buy the tincture from the wholesale druggist, and would often find its color of a lighter or darker shade. I would also find it to vary a great deal in its action. I have found it to be entirely useless; in fact, devoid of the active properties of aconite. As the drug is one that so much depends on its action, even life itself, in many cases, I made up my mind to prepare the tincture myself, which I have done for many years, and can always depend upon its action. I would strongly advise all veterinarians to do the same. The process of preparing the tincture is a simple

one, either by percolation or digestion. It is, however, necessary that you should be familiar with the appearance of the root. I have here an excellent specimen, which you may examine.

Liquor ammonii acetatis (also known as Mindererus spirit) is a preparation which I hold in high estimation. It ought to be made fresh daily. The practitioner should make it himself, which would be the only means he would have of knowing that it was freshly made. The process is a very simple one if litmus paper is used. A formula which I have had excellent results from in lung affections, especially where there is much debility and high temperature, is as follows ;

R Liq. ammonii acetatis, $\frac{z}{ss}$ xvi.
 Spiritus ætheris nitrosi, $\frac{ss}{ss}$ iv.
 Ext. hyoscyamus, $\frac{ss}{ss}$ iv.
 Misce. Sig. Give the fourth part every six hours.

As an adjunct with the former I give potassii nitratis and chloride of ammonia, of each one ounce, in a pail of water, allowing the animal to take six or eight swallows, every hour.

Cantharides is an article of commerce extremely liable to adulteration, more especially in its powdered state. I have known it to have been supplied to the veterinarian adulterated 30 per cent., the article used in its adulteration being brown mustard. The high price encourages this fraud. I make it a point to procure the flies in their natural state, and can thus judge for myself if they are fresh and free from being moth eaten, and can thereby depend on their vesicating properties. The powdering of the flies is a rather disagreeable process if precaution is not taken, but with proper precaution it is not disagreeable. I have here a very good specimen of cantharides, whole in their natural state. There are numerous formulas for making the fly blister as used by the practitioner. My experience is that the best results are obtained by using biniodide of mercury in conjunction with cantharides. I esteem biniodide of mercury as an absorbent. One drachm biniodide of mercury to one ounce of Basilicum ointment is probably one of the best absorbents for capped elbow, enlarged glands, or in dispelling or hastening the formation of pus. I have invented an absorbent which I have found superior to the former. It is hyd. biniodidi and potassae hydriodate, of each $\frac{3}{i}$; aqua, $\frac{3}{i}$. M. Sig. Apply with a tooth brush. This compound forms a clear and perfectly transparent solution. It acts like a charm in dispelling a curb. Just try it.

Aloes is a drug found in many countries, and it varies greatly in quality. Barbadoes aloes is that used almost exclusively in the veterinary profession. Cape aloes, a drug of less value and much less activity as a purgative, is often substituted for the genuine article, especially if supplied in its powdered state. It is of a liver color, and has a dull earthy fracture. Cape aloes is of a dark olive green color, is bitter and has a glassy fracture. I have here a very fair specimen of each.

Finlay Dun, in his "Veterinary Medicines," says that Barbadoes aloes should always be freshly powdered before using it. Now, I know that his method is more theoretical than practical, as Barbadoes aloes cannot be powdered in warm weather. It is my experience that aloes should never be given to the horse in a powdered state, as it is so slow in its action when given in that form, often producing gripes, and in some cases enteritis is the result. Barbadoes aloes should always be dissolved before administering it to the horse. I make an aloetic mass which is of the consistency of butter in winter, retaining this consistency in an ordinary temperature for any length of time; it also retains its full active properties, is invariably prompt in its action and never gripes. I have seen no aloetic mass to equal it. I invented the formula thirty-five years ago, and it is unknown outside of my three sons. I, however, intend to give the formula to my friend, Finlay Dun, for publication in his next edition of his "Veterinary Medicines."

I wish to call your attention to another feature in the practice of veterinary medicine, and that is in the mode of giving medicine to the animal. I am totally opposed to giving it in the form of a drench, and avoid doing so as much as I possibly can, for several reasons. One is that it is decidedly nauseating to the horse, and it will resist swallowing the liquid to the utmost degree, causing probably the half of it to be spilled and lost. Another cause of objection to drenching is in lung affections, which is a most dangerous process. I have seen death result from the excitement caused thereby on more than one occasion. I prefer giving medicine to horses in pill form, because by this method the animal actually gets the drug without being disturbed and is not nauseated in its administration. My son Jack has discovered a method to give liquids in pill form. His *modus operandi* is to make a cartridge with a piece of paper moulded on a round piece of wood, or, what is most convenient, a broom handle, fill the cartridge with dry wheaten bran, pour the liquid over the bran, which will absorb its own bulk.

One to one and a half ounces of liquid may be given in each cartridge, as I will illustrate. I have no doubt some of you will appreciate this discovery of a method of giving liquids; and others of you may not like the balling process, for fear of cutting your hands, but with the assistance of a proper mouth speculum this is avoided.

There is still another method of giving medicines to the horse which is decidedly more effectual than either of the methods I have just read of and that is in using the alkaloids hypodermically. I claim the credit of being the first veterinarian who administered medicine hypodermically to the horse in this country. It was late in the sixties—I think in 1868.

A full discussion followed by all the members present.

Dr. Lamkin then read a paper on "Parturient Apoplexy."* This paper also met with a free discussion.

Moved and seconded that a vote of thanks be tendered to the essayists. Carried.

Moved and seconded that the meeting adjourn. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary*.

CHICAGO VETERINARY SOCIETY.

The meeting was called to order on May 12 by President Walker. Thirteen members were present. The minutes of the previous meeting were read and approved. No report from Secretary. Treasurer's report showed \$16.43 in treasury. The Secretary was requested to read the list of delinquents; they numbered twenty-nine, some of whom had left the city.

Motion by Dr. Johnson, seconded by Dr. Robertson, that the Secretary notify the members two years in arrears that unless their accounts were paid by the next meeting that they shall be dropped from membership. Voted. Carried.

Dr. E. L. Quitman desired to withdraw his resignation. On vote he was allowed to do so.

The regular programme in regard to soundness of horses was led by Dr. Hughes, as follows:

PAPER BY DR. JOSEPH HUGHES.

The great broadness of the subjects assigned to me causes me to deal with them extemporaneously rather than prepare a paper on such a comprehensive number of conditions. To begin with, I have some rather postive opinions regarding

Splints and their Relations to Soundness and Unsoundness. At a certain stage of its growth, a splint is merely a localized periostitis attended with

* Printed elsewhere in this issue.

a limited amount of effusion. Later on a bony exostosis appears on the site of the periostitis. During the stage of effusion lameness is present. As soon as the exostosis appears, lameness disappears. A formed splint then, that is a matured, a developed splint, a splint that is clearly apparent and could be detected by any novice, rarely causes lameness. I say rarely, because I recognize the fact that we sometimes find a splint of very considerable extent propped up against the lower row of bones of the knee, which may interfere with the action of the joint or set up a localized synovitis. This is an instance in which a formed or mature splint produces lameness. When, however, a splint is placed below the line of the carpal articulation and having no relation with it, no matter whether it involves the lateral aspect of the metacarpal bone, the furrow between the large and small metacarpal bones, or the lateral aspect of the small metacarpal bone, I make the statement that it is harmless and will not give rise to lameness. Even in these cases involving the posterior border of the small metacarpal bone and slightly bending over the tendon, in my opinion they rarely interfere with the usefulness of the animal, except during the stage of their development. When I examine a horse for soundness and a splint of considerable dimensions is present on the inner aspect of the metacarpal region, say midway between the fetlock and knee, the purchaser generally puts the question,—“Will the horse get lame from that splint?” If I find that the horse’s action is clean and there is no tendency to interfere with the growth, during motion, I unhesitatingly say, no. Sometimes splint lameness afterwards develops in that particular limb, but when a careful examination is made, the developing splint will be usually found to affect the OUTSIDE of the region of the canon bone rather than the inside. In my opinion horses should be rejected that have developed splints close up to the knee, but we can safely overlook those exostoses when further down. There are many other points connected with the location of the splint and its relation to soundness, such, for instance, as splints located in the channel between the small and large metacarpal bones, the consideration of which I hope will be brought out during the discussion which will follow. Regarding

Thickenings or Sprains of Tendons, and suspensory and check ligaments, it may be stated broadly that such conditions give rise to unsoundness. A thickened tendon or ligament, means a shortened tendon or ligament, owing to organized effusion in the interfibrous structure, and it is plain that a horse with a shortened tendon or ligament cannot be as useful as one in the normal condition. In deciding as to whether a thickening involves the fibres of the tendon, or the paratendineum, one must depend upon the amount of flexion present in the limb while in the quiescent state, upon the action of the animal during movement and upon digital manipulation of the part. Thickness in this region should be always looked upon with suspicion. Remarks made would apply to the condition known as bowed tendon. In race-horse practice, where sprains of tendons and ligaments are common and horses are continuously changing hands, we are often called upon to give an opinion on the seriousness of thicknesses affecting these tendons and ligaments. Thicknesses, however slight or insignificant, unless they are confined to the paratendineum, are very serious in these animals. In my opinion strain and thickening of the inferior carpal or check ligament is the most

serious of all. Next to this is thickening of the suspensory, then thickening of the perforans and lastly of the perforatus.

“*Buckshins,*” or “*bucked shins.*”—This is a condition that one might say is entirely confined to race-horses, and being a diffused periostitis we often find exostosis involving the lower and anterior extremity of the metacarpal bone. Lameness is as a rule only present in the acute stage. Sometimes, however, the exostoses encroaching upon and involving the synovial membrane of the fetlock joint, producing more or less permanent lameness. These lower exostoses are known in racing parlance as osselets. The race-horses affected with them should be considered unsound, more especially if the animal is under four years old. In aged horses where there is no lameness associated with their presence, I think they may be overlooked.

Sprung Knees, on account of limiting the animal's usefulness and on account of detracting markedly from the appearance of the animal, besides having a tendency to cause stumbling, should be regarded as unsound. I am aware of the fact that there are horses with badly sprung knees who give the utmost satisfaction in the work which they are required to do. Horses having an oblique shoulder blade with sprung knees do not usually stumble and in passing on the seriousness of the condition the conformation of the shoulder should always be considered. I hold, however, that the usefulness of an animal having sprung knees is markedly interfered with and is a condition often associated with disease of other parts, and as such animals frequently stumble they should be rejected.

Scars of Neurotomy.—In examining the region of the canon it is unnecessary for me to say that scars resulting from an operation of neurectomy are sufficient cause to reject the animal.

Firing.—The marks of a firing iron are not necessarily an evidence of unsoundness. For instance, an animal may have been fired for what was supposed to be splint lameness, when perhaps the lameness might not have been located at that point, or the animal might have been fired for a supposed tendon trouble. Should we find on examining such an animal that there is no lesion of tendon, ligamentous or osseous structures and the prospective purchaser does not object to the scars made by the iron we should consider the region sound.

Interfering between the knee and fetlock should be regarded as unsoundness. Of course in arriving at such a conclusion we should take into consideration the general conformation of the fore limbs. Animals which toe out and stand base narrow are most prone to this trouble. The condition is still more aggravated if the chest is narrow. Horses with such conformation should be rejected in every instance.

DISCUSSION.

Dr. Hawley: I wish to make a remark on one point in regard to interfering. I think I can state positively that about eight out of ten horses that come from the country to the city that have never been shod behind will interfere with the first pair of shoes. If you were to condemn all horses that interfere you would have to condemn eight out of ten of these cases.

Dr. Hughes: Interfering as I dealt with it covers interfering between the fetlock and knee only—hitting the shin.

Dr. Walker : Regarding neurectomized horses you say you would in all instances reject them.

Dr. Hughes : Yes, in every instance.

Dr. Walker : I was consulted a few days ago on a case like that. A party called at my office requesting me to examine a horse for him belonging to a doctor that he was going to purchase. The doctor asked \$200 for him. I saw that the horse was neurectomized. The doctor admitted that his horse went lame some time ago and that when consulting his veterinarian he (the vet) stated that there was a nodule on the nerve which had to be taken off. After this was done the horse went all right. I advised party not to buy the horse.

Dr. Robertson : In regard to the question of shaky knees. Now, I have known of many horses that were very good and that were kept in the barn, especially box-stalls, during the winter and put suddenly to work in the spring that have developed shaking of the knees. I had several cases this summer. One in particular had it in a very marked degree. She was blistered in her back tendon and has done her work since well. Therefore one would have to be careful that he should know something of the history of the case before he rejects a horse. Regarding interference I would echo the sentiments of Dr. Hughes. Of course interfering of the canon bone is unsound. I agree with Dr. Hughes that up to within the last year or two, horseshoers made a great mistake when shoeing green horses by lessening the circumference of the foot to such an extent as to cause interfering. I would also suggest that in examining a horse, one be very careful if a green horse has been shod and is afflicted with overreaching. The trouble was that the horseshoer has cut a large amount of the wall, making it as low as possible and raised the horse's foot up behind and also the toe in front, and the consequence was that he clicked at every step he made. As soon as he changed this it lessened the interfering to a very perceptible degree. Use judgment in regard to the amount of wall that is to be taken off and the kind of shoe put on a green horse. I would recommend for a green horse to cut off just as little of the wall as possible and shoe him as light as possible.

Dr. Ryan : Did you not find that in most cases of sprung knees a great deal is due to the conformation. The conformation is not correct?

Dr. Hughes : Decidedly. Anyone on a breeding farm will have noticed it in colts growing up right from colthood. It is a very common thing to find and he may have a perfect conformation of the shoulder. Standing a horse in a stall with an inclined floor is a common cause. The opinion of some people is, that he will straighten up again. I say that in every instance one of those should be condemned.

Dr. Hawley : Supposing one buying a horse would buy him for the show ring, he was an extra high-going horse of beautiful appearance slightly sprung in the knees, a horse that the judge in the show ring would not condemn, a horse that would pass in the show ring as sound, would he have to be condemned by the veterinarian?

Dr. Hughes : If I were the veterinarian I would condemn him, for if it comes to a question of downright soundness you would have to throw him out.

Dr. Robertson : I was called to treat a horse a few weeks ago of splendid conformation and high action. He was standing all winter

idle, and was remarkably shaky after the first drive. His knees just quivered. The owner told me he gave him a very hard drive. I recommended rest for a few days, and after treating him he seems to be doing all right. Would you have pronounced him unsound on account of this little shaking of the knees?

Dr. Hughes: My old preceptor gave me good advice in cases of this kind. That is, if you find an instance where you suppose the trouble or lesion is of recent occurrence—be fair to the dealer and to the buyer; bring them together and say, "Now you can wait for this horse for a week or two. He is a little off and may be all right in a short while."

Dr. Ryan: In regard to horses cut out in the knees, do you consider this as much a defect as over in the knee position, and do you consider them unsound?

Dr. Hughes: I do, but not as much a defect as going over at the knees. Everybody knows what going over the knees is, while one cut out in the knees is very seldom noticed. An everyday horse could be possibly passed, but a fine horse I would reject.

Dr. Greiner: Do I understand right that Dr. Hughes pronounces a horse with a splint without lameness as sound? None of the people that I have to deal with care to buy a horse with a splint.

Dr. Hughes: In answer to this I would say that Dr. Greiner must educate his people to tolerate splints. I do not attach the slightest importance to the presence of developed splints when they are away from the knees.

Dr. Hawley: Mr. President and gentlemen: In regard to the question of unsoundness, especially small defects. Now a man that deals in light harness horses, for instance, is no more a thief than the one that buys them, and therefore should be given the same consideration. I claim that no man is fit to examine horses for soundness until he has gone on the market and purchased horses extensively; therefore, a veterinarian in examining horses for soundness ought to consider both sides of the question before he rejects a pair of horses.

On motion, the discussion was closed.

Motion by Dr. Hughes, seconded by Dr. Ryan, that no meetings be held during July, August and September. Voted. Carried.

Motion by Dr. Campbell, seconded by Dr. Allen, that the President call upon the officers of the St. Andrew Society, and ascertain what rental they will accept for the room we now occupy by the year. Carried.

Under new business a letter was read by the Secretary, from our former member, Dr. James Henderson, now of Scotland, setting forth his thanks for the resolutions of this society in his behalf and wishing the society all prosperity. A letter was also read from the Civil Service Commissioners of Chicago, stating they did not know when an examination for police veterinarian would be held. On motion adjournment.

L. CAMPBELL, D. V. S., *Secretary.*

UNITED STATES V. M. ASSOCIATION.

Preparations for the thirty-fifth annual meeting, which takes place in Omaha, Neb., Sept. 6, 7, and 8, are progressing satisfactorily, and advices from the officers in charge of the programme are very hopeful that this session will be superior to all its predecessors.

Secretary Stewart has issued the following circular letter to members, which gives a good general outline of the details of the programme :

KANSAS CITY, May 20th, 1898.

DEAR DOCTOR :—The annual meeting of the U. S. V. M. A. to be held at Omaha, Nebr., September 6 to 9, 1898, will be one of larger interest to our members and others than any held heretofore, and by this letter you will get in outline, some hint of the richness of the scientific feast in preparation for those who attend.

Meat Inspection, especially as applied to municipalities, will be discussed, and the following several phases will be presented by special papers : Methods of Cultivating Public Opinion in Favor of Municipal Inspection ; The Necessity for Consolidation of Municipal Slaughter-Houses into Large Abattoirs under Municipal Control ; Reasons for Meat Inspection ; Slaughter-House Inspection ; Retail Market Inspection ; Disposition of the Flesh of Tuberculous Cattle.

As veterinarians everywhere are interested in and desire to help bring about meat inspection in their respective cities and towns, this discussion must certainly prove very helpful. To make the discussion still more interesting and helpful, a large variety of specimens of diseased tissues and organs, found in slaughter house inspection, will be exhibited in the fresh state.

Many papers will be read which relate to general practice, and some of them will be illustrated by clinical demonstration. The Nebraska Association will provide a number of animals requiring surgical operations for relief from abnormal or diseased conditions. These operations will be performed by well-known members of this Association. The clinical feature of this meeting cannot fail to be very interesting, and you are given this timely notice that you may plan to attend. The following operations will probably be demonstrated : Methods of Securing Animals for Surgical Purposes ; Methods of Producing Anæsthesia ; Ovarectomy in the Mare ; Cryptorchid Castration ; Arytenoidectomy ; Median-Neurectomy ; Caudal Myotomy (straightening, setting up, docking) ; and some dental operations.

The Local Committee of Arrangements has planned to make attendance at this meeting most agreeable, the arrangements providing for special entertainment for the ladies accompanying members and visitors (and the ladies are especially invited). The Trans-Mississippi Exposition will be at its best, and will nearly approach the Columbian World's Fair in character and extent of display. This Exhibition will add greatly to the pleasure of the sojourn at Omaha.

Three proposed amendments to the Constitution and By-Laws will come before the Association for its consideration and adoption or rejection :

1st. To change the name of the Association from "The United States Veterinary Medical Association," to "The American Veterinary Medical Association."

2d. To change Article III. of the Constitution to the effect that the President shall be elected for a term of two years instead of one year, as at present.

3d. To change the annual dues from "five dollars" to "three dollars."

Certainly every member is interested in the proposed changes, and particularly in the one relating to a reduction of the annual dues. The condition of the treasury at the opening of the last meeting was such that all officers and committees, who have to take into account the financial affairs of the Association, recommended that the proposed reduction be made. The By-Laws provide that dues shall be paid in advance, and if the members would all balance their accounts for dues, there would remain no obstacle to the adoption of the proposed reduction.

The present state of the treasury permits the prompt publication of the proceedings of our meetings, and the Publication Committee was enabled to place the report of the last meeting in your hands within sixty days after the close of the Nashville meeting. Many letters expressing appreciation of this report, both for its prompt publication and the fullness of detail, have been received. The Committee welcomes criticism of this report, as well as suggestions intended to increase the value of the report of the meeting to be held at Omaha. If you intend to prepare a paper for the programme of the Omaha meeting, and you are respectfully urged to do so, you should notify me at once, stating title of same.

If there are any errors in the address on the enclosing envelope kindly advise of the same that our books may be corrected, and make more certain the delivery of future communications from this office.

If your neighbor veterinarian is likely to be interested in the work of this Association and would probably apply for membership if solicited, will you not write to the resident Secretary for your State and secure an application blank and copy of By-Laws, for your neighbor's consideration.

Enclosed find a statement of your account for dues. Be assured your Secretary finds the collection of dues an arduous task, and the issuance of notices of delinquencies an unpleasant duty. Will you kindly give this matter your early attention, and not make it necessary to send a second statement.

Yours very sincerely,

S. STEWART, *Secretary*.

Dr. H. D. Gill, of New York, will demonstrate the operations on the horse's tail of docking, straightening, and setting up. Dr. W. L. Williams will demonstrate castration and spaying, both in the horse and in small animals. Dr. Tail S. Butler will exhibit his method of casting and confining for various operations.

In addition to the paper announced in the May REVIEW, Dr. Gill, of New York, and Dr. M. H. Reynolds, of Minnesota,

will each read a paper. Dr. Roscoe R. Bell announces the title of his paper as "Acute Indigestion in Horses."

MASSACHUSETTS VETERINARY ASSOCIATION.

The fourteenth annual meeting of this association was held April 27th, at the Quincy House, Boston, at which there was a large attendance of members.

A business meeting was held in one of the parlors and the following officers were elected for the ensuing year: President, John F. Winchester, D. V. S., Lawrence; First Vice-President, E. H. Holden, D. V. S., Springfield; Second Vice-President, J. R. McLaughlin, D. V. S., Newton; Secretary and Treasurer, Henry S. Lewis, M. D. V., Chelsea. Executive Committee—Langdon Frothingham, M. D. V., Boston; L. H. Howard, D. V. S., Boston; Howard P. Rogers, M. D. V., Allston; George Lee, D. V. S., Brighton; P. G. Connor, M. D. V., Boston.

The Secretary's report showed seven new members during the last year. The Treasurer reported the expenses for the year just passed, \$187.80; received for dues for the same period, \$170; on deposit in bank, \$274.86.

The members then adjourned to the banquet hall with their guests, Mr. Leander Herrick, of the Massachusetts Cattle Commission, and Mr. D. S. J. Murphy, of Cork City, Ireland.

The President introduced Dr. J. R. McLaughlin as toastmaster, and the following toasts were responded to: "Our Country's Arms; May They Be Successful," Dr. Austin Peters; "Our Alma Mater, Harvard University," Dr. F. H. Osgood; "American Veterinary College," Dr. L. H. Howard; "McGill University," Dr. John M. Parker; "Massachusetts Cattle Commission," Mr. Leander Herrick; "Our Committee on Entertainment," Dr. L. Frothingham; "Usefulness of the Cow," Dr. W. E. Peterson; "The Absent Ones," Dr. J. H. Stickney; "Massachusetts Veterinary Association," Dr. J. F. Winchester; "Our Guest," Mr. D. S. J. Murphy; "Harvard Alumni," Dr. E. C. Beckett; "United States Bureau of Animal Industry," Dr. John S. Slee; "McGill Alumni," Dr. B. D. Pierce; "Watch Dog of the Treasury," Dr. H. S. Lewis.

Having done justice to all the good things served by the landlord, the evening was closed by the members standing and singing "Our Country," "Star-Spangled Banner," and "Should Auld Acquaintance Be Forgot."

HENRY S. LEWIS, *Secretary*.

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

The association met in Greensboro, N. C., Dec. 27, 1897, President Dr. C. R. Ellis presiding. Roll-call showed a fair representation of members present.

The President's address was pointed, and showed the necessity of strict sanitary regulations in our State as to meat and milk inspection.

Discussion followed, which led to a motion to appoint each member one of a committee to aid the Secretary in procuring the signatures of all physicians in the State who would aid in securing said regulations.

A committee was appointed on legislation, consisting of the President, Secretary, and Dr. W. C. McMackin.

Drs. Charles H. Lockwood, H. G. Bessent, and H. T. Bauer were appointed a Board of Examiners, one to serve three years, one two years, and the other one year.

Mrs. C. R. Ellis was elected an honorary member on account of the interest shown by her in the association.

Dr. John Lockwood, of Washington, D. C., was elected a member.

The association adjourned to meet in Wilmington, N. C., in July.

J. W. PETTY, *Secretary and Treasurer.*

WESTCHESTER COUNTY VETERINARY MEDICAL SOCIETY.

At a meeting of the veterinarians of Westchester County on May 16th, at Yonkers, the Westchester County Veterinary Medical Society was organized, and the following officers elected: President, Dr. M. J. Tewey, Irvington; Vice-President, Dr. R. R. Morrison, White Plains; Treasurer, Dr. J. P. Nestler, New Rochelle; Secretary, Dr. W. B. Moorhouse, Tarrytown. We meet again to complete the organizing of the society on Thursday, June 2, in Yonkers. I think it will be a great success.

W. B. MOORHOUSE, D. V. S., *Secretary.*

THE PENNSYLVANIA STATE VETERINARY EXAMINING BOARD

Will hold its next examination on the third Monday and Tuesday in June, in Philadelphia. Further information can be obtained by addressing the Secretary.

S. J. J. HARGER, *Secretary*, 205 N. 20th St., Philadelphia.

NEWS AND ITEMS.

L. H. HEMPELMANN, D. V. S., of St. Louis, Mo., has been ill, but is now convalescent.

PROF. R. S. HUIDEKOPER has been called to the military service in the present war with Spain.

DR. JOHN J. CATTANACH, of New York, will soon start upon a prospecting tour through the Klondike region.

VETERINARIAN P. M. MCARTHUR died at Hot Springs, Ark., and was buried in Winston, N. C., March 24.

OUR E. C., the *Journal*, stills proclaims that it "leads veterinary journalism in America." Whither, friend Hoskins, are you leading us?

SECRETARY J. W. PETTY, of the North Carolina Veterinary Medical Association, has removed from Greensboro to Winston, N. C. He has not enjoyed good health recently.

DR. CLAUDE D. MORRIS, Secretary of the New York State Veterinary Medical Society, has removed from Pawling and located at 50 Front Street, Binghamton, N. Y.

PROF. GEO. P. BIGGS, of the New York College of Veterinary Surgeons, was married on April 14th, to Miss Florence Browning, of New York. We wish him the greatest joy.

FRANK R. HANSON, D. V. S., of New York City, brother of Harry D., and also his business partner, has been very ill with pleurisy, but we are pleased to hear he is now a safe convalescent.

JOHN P. MESSER, D. V. S., graduate of the A. V. C., class '97, recently enlisted as a private in Company G, 71st Regiment, New York Volunteers, and has gone to the front for service in Cuba.

DR. G. HOWARD DAVISON, graduate of the A. V. C., '90, proprietor of the Altamont Stock Farm, at Millbrook, N. Y., has enlisted and gone to the front as veterinary surgeon of Troop A of New York City.

VETERINARIANS IN POLITICS is a healthful sign of the times. Dr. T. Earl Budd, of Woodbury, N. J., is a candidate for Councilman, and Dr. E. C. Porter, of Newcastle, Pa., is contesting three M. D.'s for the position of Coroner.

DR. WILLIAM H. PENDRY, of Brooklyn, was elected President of the Alumni Association of the American Veterinary

College at its last meeting, and was double honored by an excellent reproduction of his physiognomy in the May *Journal*.

ATKINS & DURBROW announce that veterinarians are ordering their Red Ball Brand Stock Food, and using it according to their suggestions in their advertisement elsewhere. The ingredients are not secret. They'll give you the formula if you wish.

CORNELL UNIVERSITY continues to reach out in the establishment of scientific schools. She is to open a medical department in the city of New York, the faculty to consist of those professors who recently resigned from the Medical Department of the University of the city of New York.

THE only case which has come under our observation of a lady becoming an honorary member of a veterinary medical association occurred at the last meeting of the North Carolina Association, when the wife of the President, Dr. C. R. Ellis, was unanimously elected on account of her great interest in its welfare.

ONE VETERINARIAN'S OPINION.—“The AMERICAN VETERINARY REVIEW is an indispensable means of keeping the rural as well as the city practitioner abreast with the advances of the profession, as well as with the most appropriate treatment of diseases.—D. F. Bowersox, Aaronsburg, Pa.” Tell your fellow-practitioners about it. That's the way to make the REVIEW better.

GRAND RAPIDS VETERINARY COLLEGE.—The first commencement exercises occurred on March 25, in the college building. Dr. Dales presided and delivered an interesting address. The graduates were six in number, as follows: L. L. Conkey, M. T. Bonasiewicz, and George Harr, of Grand Rapids; Thomas Bunberry, Niles; A. H. Swift, Freesoil, and George H. Stevenson, Detroit.

THE ARMY VETERINARIANS are kept pretty well on the move in these stirring war times. Dr. W. V. Lusk, of the Second Cavalry, writes us under date of May 19, from Mobile, Ala., saying that the April issue had just reached him and was about worn out, having been forwarded from Fort Wingate to Leavenworth, from Leavenworth to Logan, from Logan to Chickamauga, and from the latter place to Mobile.

LAVAGE OR WASHING OF TRACHEA.—Profs. W. L. Williams and Pierre A. Fish described this operation in a commu-

nication to the REVIEW, in December, 1897, entitled "Inhalation Pneumonia," page 609. In a letter dated May 22 Dr. Williams says: "The lavage or washing of the trachea and bronchi is gradually pushing its way to the front, and must eventually assume a recognized place in surgical therapeutics."

A SPECIAL BULLETIN (illustrated) on the "Inspection of Meats for Animal Parasites" has just been issued by the Agricultural Department at Washington, D. C. The work was prepared under the direction of Dr. Salmon, Chief of the Bureau of Animal Industry, and discusses the subject under the following heads: "The Flukes and Tapeworms of Cattle, Sheep and Swine" and "Compendium of the Parasites Arranged According to Their Hosts."

DR. FRANK H. MILLER, who attended a two-year post graduate course at the Clinic for Small Animals in connection with the Veterinary School at Berlin, Germany, and subsequently located in New York City, as a specialist in diseases of dogs, cats, and birds, has been secured by the REVIEW to contribute a number of articles upon his specialty during the summer months. The first installment will be upon the interesting subject of "Follicular Conjunctivitis," and will appear in the July number.

DR. HERBERT NEHER, who has occupied the position of veterinarian to the Metropolitan Street Railway Company of New York for the past ten years, has resigned, and will move to his recently purchased estate in Fort Edward, N. Y. He has worked very hard since he graduated from the American in 1887 and has amassed a competency, so that he can afford to retire to a less active life and enjoy the fruits of his industry and frugality. He has been a diligent student in his spare moments and has done some clever microscopical work, which possesses special attractions for him. The metropolitan district can ill afford to lose him, as he was ever earnest in promoting the interests of his profession. We trust that with his increased leisure his brethren may receive the benefits of his energy through the medium of the journals.

COMMENCEMENT EXERCISES OF THE KANSAS CITY VETERINARY COLLEGE.—The seventh annual commencement exercises and banquet of this college occurred at the Midland Hotel, Kansas City, on Thursday, March 31, at 8.30 P. M., and the following gentlemen received their degrees: William N. D. Bird, John D. Cooper, Charles H. Davies, M. D., W. W. Johnston, M. D.,

and James Otterman, M. D. At the banquet, which offered a most delicious *menu*, were seated the faculty, graduates, and many friends of the college. Dr. S. R. Brooking acted as toastmaster, and Dr. C. J. Sihler presented the diplomas, the class response being delivered by Dr. W. W. Johnston. The toast to "Our Faculty" was responded to by Dr. S. Stewart; "Medical and Veterinary Profession," by Dr. I. J. Wolf; "The Veterinary Microbe," by Dr. O. W. Kreuger; "The Medical Man as a Fighter," by Dr. Leon Rosenwald; and "The Veterinarian's Place in Society," by Dr. George A. Johnson.

BACK NUMBERS REVIEW FOR SALE.

The following numbers of the AMERICAN VETERINARY REVIEW for sale, at 25c. each, from the year 1890 to '97, from year 1880 to '89, 35c. each:

Dec, '81, '82, '84, '85, '86, '87, '88, '89, '90, '91, '92, '93, '94, '95, '96, '97. Oct., '81, '85, '87, '88, '89, '90, '91, '92, '93, '94, '95, '96, '97. Nov. '81, '85, '86, '87, '88, '89, '90, '91, '93, '94, '95, '96, '97. Sep. '81, '87, '88, '89, '90, '91, '92, '93, '94, '95, '96, '97. Aug., '81, '83, '85, '86, '87, '88, '89, '90, '91, '92, '93, '94, '95, '96, '97. July, '81, '84, '85, '87, '88, '89, '90, '91, '92, '93, '94, '95, '96, '97. April, '81, '83, '84, '85, '86, '87, '88, '89, '90, '91, '92, '93, '94, '96, '96, '97. March, '83, '84, '86, '87, '88, '89, '90, '91, '92, '93, '94, '95, '96, '97. Feb., '84, '85, '86, '87, '88, '90, '91, '92, '93, '94, '95, '96, '97. Jan., '82, '84, '85, '86, '87, '89, '91, '92, '93, '94, '95, '96, '97. June, '81, '84, '85, '86, '87, '88, '89, '90, '91, '92, '93, '94, '95, '96, '97. May, '81, '84, '85, '86, '88, '90, '91, '92, '93, '94, '95, '96, '97.

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I have the following volumes of AMERICAN VETERINARY REVIEW, bound full in sheep: Vol. XII, XIII, XIV, and XV; also, in cloth REVIEW bindings, Vols. XVI, XVII, and XVIII. Also, *Veterinary Journal* (England), Vols. XXIX, XXX, XXXI, XXXII, and XXXIII, cloth and half sheep. Address, T. J. TURNER, D. V. S., care Kingan & Co. (Limited), Indianapolis, Ind.

BACK NUMBERS REVIEW WANTED.

I need No. 6 of Vol. XVIII (Sept., 1894), and Nos. 5 and 6 of Vol. XIX (August and September, 1895). I have a number of duplicate numbers, which I would exchange. A. W. BITTING, D. V. M., Purdue University, Lafayette, Ind.

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AMERICAN VETERINARY REVIEW.

JULY, 1898.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLES.

PLEURO-PNEUMONIA—ITS MICROBE.—From a practical point of view almost anything relative to pleuro-pneumonia can be but of secondary importance to American veterinarians. The scourge has played a sad havoc among our cattle. Through the efforts and masterwork of the Bureau of Animal Industry it has been stamped out of the United States, and through the vigilance of our quarantine officers it will never reënter the country. We read of outbreaks occurring in various parts of Europe now and then, and ask ourselves why don't they follow America's example? But that is all. Practically speaking, the disease has lost its interesting part with us.

It is not so, however, with the scientific problems that remain yet unknown in it, and among those one exists which has attracted the attention of some of the most brilliant men in our profession—that is, the specific agent of the pleuro-pneumonic virus—its separation, its culture. Many have tried to detect it. All have failed. The serosity of the pleuro-pneumonic lung contains the virus; but what the germ is no one has succeeded in discovering nor been able to cultivate it, and the most virulent serosity will fail to give the slightest culture *in any of the usual media*, in the air or in vacuum. Although Arloing, Nocard and many others have made numerous attempts in their investigations, their efforts have remained always unsuccessful to this date.

But there are men who never get tired of failures ; on the contrary, their courage for investigation is stimulated by them, and Prof. Nocard is certainly one of such men. At last he has succeeded in breaking through the thick mass of difficulties by obtaining cultures of the germ, and that by a process which he has borrowed from the work of Metchnikoff, Roux and Salimbeni, and which consists in cultivating the germ of a contagious disease *in vivo*—that is, by placing in the abdominal cavity of an animal, *a little sac of collodion containing a few cubic centimeters of bouillon in which the virulent substance has been inoculated, and leaving it there for a variable length of time.*

Having recourse to this method, Nocard has succeeded in obtaining cultures of an opaline color, slightly albuminous, containing no cells nor bacteria which could be cultivated in ordinary bouillons, but an immense number of small refringent moving bodies, so minute that their form cannot be exactly determined, even after coloration. These small bodies are living organisms : they are the germs of pleuro-pneumonia. A series of experiments have proved it beyond a doubt.

This is another great discovery attached to the reputation of the learned professor of Alfort, and when, with his usual modesty, he related the facts connected with his successful attempts, there were many among his listeners who predicted for him a name even greater than that of Pasteur. This discovery of the germ of pleuro-pneumonia, by cultivation *in vivo* of the virus, opens up a large field, and certainly now it can be hoped that other germs, which, like that of the bovine scourge, are yet unknown, whose cultures by ordinary processes have always failed, may at an early date be discovered, to be followed by subsequent facts connected with their study, modifications, attenuation, . . . and their serotherapeutic application can be looked for.*

* * *

ANOTHER CONGRESS OF TUBERCULOSIS.—The fourth session of the Congress for the Study of Human and Animal

* The detailed relation of Professor Nocard's discovery is begun in this issue.

Tuberculosis will be held in Paris between July 27th and August 2d of this year. Among the officers of the permanent committee of organization we find the names of some celebrated veterinarians of Paris, Professors Chauveau and Nocard, Mr. Butel, Leblanc and Rossignot. Among the subjects of interest which will occupy the sittings of the Congress, those which are directly of importance to the veterinarians will be: (1) The struggle against animal tuberculosis by prophylaxy, by Professor Bang, of Copenhagen; (2) contagion of tuberculosis by milk and meat; (3) sterilization of the meat of tuberculous animals.

Veterinarians of all countries can become members of the Congress by sending their application and a payment of 20 francs (four dollars). They will receive a receipt for the same, a title of membership and a copy of the printed transactions. Applications can be sent to Mr. G. Nasson, treasurer of the Congress, 120 Boulevard Saint Germain, Paris.

At this moment, when the subject of tuberculosis is of such importance to many of our colleagues in the United States, we have no doubt that America will be represented, at least nominally, among the members of this Congress.

* * *

A NEW SHOE FOR DRESSING.—This is quite a novelty, answering for all kinds of permanent dressings and for all affections of the sole of the foot. Applied in the ordinary way, it permits the inspection of a wound, the thorough use of antiseptic applications, and by its remaining fixed on the foot, to a certain extent allows a limited amount of use of the animal. It is an ordinary shoe, which has an iron plate, the size of the sole, perfectly adapted to the inside circumference of the shoe. This plate at the back has on each side a small round prolongation, tooth like, which is received in a hole bored in the thickness of each branch of the shoe towards the heels, and thus secured forms a kind of hinge which permits its opening and examination of the sole to be made. Towards the toe, opposite one of the nail holes on each side of the shoe, there is a little

flat projection, which is perforated and resting over the nail hole. A nail driven in holds it in place. It is claimed that this new shoe does away with all other kinds of wood or metallic plates, which, no matter how well applied, are likely to get loose and drop from the foot, thus exposing the dressings and the solar surface to be displaced or injured. While this may be considered here as a new invention, it seems to me that I have already seen something of the same kind due to the ingenuity of some of our American inventors. A. L.

UNITED STATES V. M. ASSOCIATION.

The programme for the approaching meeting at Omaha, as it gradually unfolds, grows in interest, and those in charge of the details are becoming enthusiastic at the prospect of the greatest meeting ever held under its auspices. Reports from various and widely divergent points indicate that the attendance will be large and very national in character, which is one of the most encouraging features of the event, guaranteeing that element in its constituency which has been so ardently sought for by its true friends from its incipency.

The educational programme especially appeals to its diversified membership, shaping itself by voluntary essayists representing subjects of interest to every phase of membership—from the important and weighty questions of State medicine to the most commonly found diseases of every-day practice, developing through the discussions valuable points to enrich the knowledge of the members on questions where doubt exists and opinions differ.

To the practising veterinarian no department requires greater knowledge, skill, and practice than the domain of surgery. Many operations which have never been attempted by a practitioner are regarded with graver fears than their character warrants, and all they need is an exhibition of the *modus operandi*, when their simplicity is recognized or their manipulation appreciated, and henceforth they successfully undertake them. This especially appeals to the younger members, whose years of ex-

perience are limited. For the most approved methods of performing many of the recognized operations, the association will be favored by surgical clinics conducted by some of the most celebrated American surgeons, illustrating such procedures as securing animals for surgical purposes; demonstrating various methods of producing anæsthesia; castrating the mare and the cryptorchid; arytenoidectomy; median neurectomy; caudal myotomy (straightening, setting up, docking), and a number of operations upon the dental apparatus.

In the section of sanitary medicine, a subject which is rapidly forcing itself upon the profession and public will be brought forward in a systematic and comprehensive manner. Meat inspection is now too thoroughly established nationally to leave any fear that its extension is not to go steadily onward, until every municipality will include in its necessary officers one or more veterinarians entrusted with the important duties of guarding the purity of the animal products consumed by its citizens. For such duties the profession is in duty bound to furnish well-equipped men, and the natural and recognized source of all authority on the questions involved is the National Association, and the occasions for the discussion of the many intricate problems connected with it are at her annual gatherings. In the great West, where the bulk of the meat is prepared for the foreign market, the question is at its perfection, the men of experience in the specialty are there, and no occasion should be so fruitful of good results as the coming meeting in Omaha.

In times gone by, notably a few years ago, many of the members engaged in private practice had good cause to complain that subjects in which they were directly interested were neglected to make room for the discussions upon tuberculosis, pleuro-pneumonia, Texas fever, etc., which were practically endless. There was less cause for complaint at Nashville than at previous meetings, not that sanitary subjects were neglected, but that by holding night sessions, and by a happy dispatch of business, room was made for all the sections. This year there will be many papers of direct interest to those who are the

“ physicians ” to the sick and the lame, from that frequent and fatal malady among the fast working city horses, acute indigestion, to a consideration of points observed in country practice.

Of not less importance, in many respects, is it imperative to have the annual conclave a source of pleasure to those who journey long distances to engage in the deliberations. One might insist that the sacrifice of time and expense is not necessary, when the excellent report of the proceedings sent out from the Secretary's office, or published in the journals, will give a sufficient conception of the transactions; but with the enjoyments of renewed and formed acquaintances, with delightful social and gastronomic diversions, interspersed with new and enlightening scenes, no report in cold type can supplant the presence of the individual. In another department of the REVIEW will be found the programme of the Entertainment Committee as far as it has been completed, and its contemplation will decide many a member to be present who has hitherto been wondering how he could get away from home.

Every member who possibly can should be present at the next meeting. Let Western veterinarians show to the Eastern that they are glad to have the meeting in their midst, and let those from the Atlantic seaboard demonstrate to their Western brethren that they mean that the U. S. V. M. A. is for all alike by going there in large numbers and joining heads, hands, and hearts in this grand year of stirring liberty.

TO FURTHER ARMY VETERINARY LEGISLATION.

At the May meeting of the Keystone Veterinary Medical Association the neglected condition of the veterinary surgeon in the United States Army was very earnestly taken up, the discussion showing how he was without rank, and without recognition or provision in case of old age or injury; that his social and financial status was subordinate to his worth, education, and position in the outside world, and that in the present crisis, where opportunities for promotion are numerous to other branches of the army, he remained beyond the pale of that

possibility. The members of the Association displayed a commendable spirit in their desire to elevate their military brethren, and to that end a committee to confer with the State Association was appointed, as a result of which the sum of \$200 was jointly pledged to defray the expenses of a committee sent to Washington to urge the passage of the Army Bill. We applaud the spirit of our Keystone brethren, and trust their example may bring forth a concerted action all over the country, and that the approaching meeting at Omaha may take up the matter with so much enthusiasm as to be practically irresistible.

ORIGINAL ARTICLES.

THE MICROBE OF PLEURO-PNEUMONIA.

BY MM. NOCARD AND ROUX.

With the collaboration of *MM. Borel, Salimbeni and Dujardin-Beaumetz.*

Translated by A. LIAUTARD.

The essential lesion of contagious pleuro-pneumonia of cattle consists in the distension of the meshes of the interlobular connective tissue by a large quantity of albuminous, yellowish and limpid serosity.

This serosity is very virulent.

Let us inoculate one drop of it in the subcutaneous cellular tissue of a susceptible cow: after an incubation, never less than eight days, but which may last twenty-five or more, an inflammatory, warm, tense and painful swelling will appear, whose dimensions vary considerably, according to the seat of the inoculation and the subjects inoculated.

If the virulent serosity is deposited under the skin of the trunk or the upper part of the extremities, it promotes, with a severe fever, a large swelling, incrusting rapidly, *often followed by death.* At the autopsy, the meshes of the cellular tissue are found distended by an enormous quantity of yellow and limpid serosity, coagulated here and there into gelatinous masses; the ex-

udation is sometimes so abundant that several liters of virulent serosity can be collected; no matter how extensive, the exudation never extends into the connective lamellæ of the lungs; a little serous exudate may be observed in the pleural sac, but visceral lesions are never found; consequently death is the result of an intoxication.

Some subjects resist; after several days, the swelling, always warm, tense and painful, remains stationary, then diminishes and disappears little by little, without leaving any marks; these subjects are henceforth refractory to the effects of a virulent inoculation and also to those of natural contagion.

This fortunate occurrence is the rule, when inoculation is made far from the trunk, at the end of the tail for instance, where the density of the tissues and the low local temperature does not permit an active germination of the virus. The swelling following inoculation is always similar to that we have described; but it remains limited and disappears by degrees, leaving the animal refractory to natural or experimental contagion.

At times, however, the exudation is so abundant, it promotes such tension upon the aponeurosis, that mortification ensues with sloughing of pieces of the tail, of varying lengths. At others, again, but rarely (once or twice in a hundred), the swelling, instead of remaining confined to the extremity of the tail, ascends rapidly along the organ, and invades the cellular tissue of the croup and of the pelvis; death occurs generally, and the invaded regions at the post-mortem are found infiltrated with large quantities of serosity similar to that of the lung in the natural disease.

Pleuro-pneumonia serosity, so virulent for cattle, is without action for other species. Goats, sheep, dogs, swine, rabbits, guinea-pigs, fowls, resist without injury the subcutaneous or intraperitoneal injections of massive doses of virulent serosity.

These facts were established by Willems in 1850; from these he invented the rules of an efficacious prophylaxy. But this inoculation of Willems, which has been so advantageous, is not without objections. It necessitates the deposit of a drop

of pulmonary serosity in the cellular tissue of the caudal extremity of the animal to be immunized. But this serosity alters with great rapidity; it rapidly becomes putrid and loses its virulency, consequently a fresh lung is necessary for inoculation; ordinarily a pleuro-pneumonic animal is killed at the moment of the operation; but, sometimes the destroyed animal has only an old lesion, where the serous exudate may have lost its virulency or where it may be entirely absent; at times, also, when *essentially preventive* inoculations are to be made, a pleuro-pneumonic cow to be killed cannot always be found.

A real progress was reached when Pasteur taught us how to collect pure serosity from the connective tissue of the pleuro-pneumonic lung and also to obtain large quantities of virulent serosity by the inoculation in a forbidden region of a calf with a drop of pulmonary serosity. Then it became possible to make collections of virus and to distribute them far away, here and there, as it was needed.

Yet the problem was not entirely solved; pleuro-pneumonia serosity, even if gathered pure, loses its virulency somewhat quickly; after one month, six weeks at most, inoculation remains ordinarily without effects. To be sure of being able to supply all demands, centres of production of virus must be established, where every month, at least, fresh subjects shall be inoculated. This is done at great cost in a small number of places.

To determine the specific agent of the pleuro-pneumonic virus, to separate and cultivate it, would constitute, then, an immense progress. Unfortunately all those that have tried—and they form a legion—have failed.

We also have made numerous attempts, and that for a long time. They have always been fruitless. When it has been collected pure, in the perilobular sub-pleural lymphatic sacs, the most virulent pleuro-pneumonic serosity can be inoculated *in all the usual medias*, in air or vacuum, without ever giving culture. Neither can anyone succeed in coloring in them any microbic element with the use of any of the means known.

We had given up all attempts when the paper of MM. Metchnikoff, Roux and Salimbeni, upon the choleric toxine and antitoxine, was published.* The results that they obtained with cultures *in vivo*, in bags of collodion, gave us hope of success. In a few words, the principles and technic of this ingenious method of culture are as follows :

Small bags of collodion with very thin walls are prepared : when sterilized in the thermostat, a few cubic centimeters of bouillon are introduced into them, with a little of the virulent liquid to study ; the bags are well closed and then introduced into the peritoneal cavity of a susceptible animal—guinea pig, rabbit, dog, sheep, cow, etc. All these manipulations are quickly learned, and on no occasion does the animal seem to suffer, either from the operation or from the presence of the bags in the peritoneal cavity.

After a varying length of time, from a few days to several months, according to the nature of the microbe that one studies, the animal is killed ; the bag is found lodged in some part of the peritoneal cavity, surrounded by a more or less thick envelope of fibrine and cells, or of young fibrous tissue, from which it is easily enucleated.

When the animal of experiment and the liquid of culture have been properly selected, surprising results are obtained, which can, however, be easily interpreted.

The wall of collodion offers an insuperable obstacle to the microbes as well as to the cells ; the former cannot get out of the bag, but can multiply in perfect security, because the latter cannot enter it ; they are protected against phagocytosis. Besides this, this wall, inaccessible to microbes and cells, is permeable to the liquids as well as to substances in solution ; it forms a perfect osmotic membrane ; through it exchanges take place which deeply modify the primitive composition of the inclosed liquid ; substances elaborated by the microbe can be diffused outside, and when they are sufficiently active or when the animal is sufficiently sensitive, they may produce the death

* *Annales de l'Institut Pasteur*, 1896, p. 257.

of the animal or give rise to more or less serious toxic manifestations, without the invasion of the tissues by one single microbe ; at any rate, it is an advantageous condition for culture the microbial auto-intoxication being diminished, if not suppressed ; and, again, products from the organism of the subject entering the bag, which may be favorable to the culture of the microbe ;—this is the most frequent result ; and when the bag is open, the richest culture is generally found.

“This method,” say the authors, “is very advantageous to preserve delicate microbes, and succeeds with many species.”

Perhaps it would succeed with the pleuro-pneumonic virus ? Our suppositions were confirmed.

Bags of collodion, filled with bouillon inoculated with a trace of pleuro-pneumonic serosity, carefully closed and placed in the peritoneal cavity of a rabbit, after 15 or 20 days, contain an opal liquid, slightly cloudy and albuminous. This liquid contains no cells, no bacteria cultivatable in ordinary bouillons. But microscopic examination with a very large power (about 2000 diameters) and a very powerful light, reveals in them a mass of small refringent and motile points of such tenuity that it is impossible, even after coloration, to make out exactly their form. If in the peritoneum of the same rabbit a second collodion bag has also been introduced, containing *identical but not inoculated* bouillon, one can be convinced that the changes of the liquid of the first bag are not due purely and simply to the osmotic exchanges which have taken place through the walls of the bag ; as, indeed, the liquid of the second bag, the *witness*, has preserved its primitive transparency and limpidity.

In reality, the motile and refringent points of the inoculated liquid, so numerous that notwithstanding their extremely small size, they made the bouillon opalescent, are living beings which have germinated to infinity, assisted by the changes undergone by the fluid of culture and thanks to the prevention of the phagocytic action by the walls of collodion.

This is proved by inserting in the peritoneum of a sound rabbit two collodion bags, one containing bouillon inoculated

with traces of the opal fluid thus obtained, the other with the same culture, which has been *previously heated*; with this last bag the culture will remain identical with the *witness* bag above mentioned; its contents will remain clear and transparent, while the other one will be opalescent and cloudy, with the numerous refringent points already described; heat had killed the germs of the first one.

With the opal liquid of the fertile bag of the second rabbit, other bags can be inoculated and be placed in the peritoneum of a third rabbit and so on, and always identical results will be obtained. It is wise, however, to use several bags in each passage, as the rupture of a bag is quite common.*

Most ordinarily rabbits have lost much flesh when they are to be killed; sometimes they even die before the day fixed for the autopsy: they are then in a deep state of cachexia, only skin and bones; post-mortem, however, reveals no noticeable organic lesion; the blood and pulp of the parenchymas, inoculated in various media, even in collodion bags, give no culture; then it is, according to all probabilities, an intoxication due to the diffusion, outside of the bag, of the products elaborated by the microbe; at any rate they cannot be attributed to digestive troubles (or others) which would be due to the presence of the bag (foreign body); when the bouillon has not been inoculated rabbits may receive several bags and keep them for months, without showing the least disturbance, without losing one gramme of their weight. It has seemed to us that these accidents were so much more marked and cachexia deeper than the bags, introduced after inoculation were more numerous, of larger dimension or that the culture obtained was richer. Here, then, is a new example of an animal becoming very sensitive to the toxines of a microbe against which, however, he is refractory.

We have tried several times to obtain cultures in bags with

* The bag of collodion can be advantageously replaced by one made with the fine tubular membrane of reed-cane, which according to Metchnikoff offers also an obstacle to the microbes and to the cells, still being permeable to liquids and substances in solution. It is also very strong and resisting.

guinea pigs ; we have never succeeded ; even after leaving them six weeks in the peritoneal cavity, the bouillon remained as limpid as it was on the first day, no matter how great the quantity of virus it had received.

It is, then, a special microbe, which has grown through successive cultures in the peculiar media created by osmotic exchanges, in the rabbit, within a bag of collodion or of reed-cane.

Is this peculiar microbe the agent of pleuro-pneumonic virulency ?

Inoculation allows an affirmative answer.

We proved it by our observation of five cows in which inoculations of a small quantity of culture in bags has given rise to the appearance of the essentially characteristic pleuro-pneumonic swelling.

One of those cows (No. 1) has died with a tremendous oedematous infiltration ; the four others resisted. Two of them (Nos. 2 and 3) reinoculated in forbidden region with a large dose (1 c.c.) of pulmonary serosity, have not shown the slightest local or general symptom, while a *susceptible* cow (No. 4) inoculated at the same time, *as a witness*, with 10 drops of the same serosity, died twenty-two days after inoculation. A third cow (No. 5) reinoculated after four months with 1 c.c. of pulmonary serosity from a subacute lesion, has not yet presented any fever nor any local lesion. The fourth (No. 6) has not yet been reinoculated.

* * *

As we remarked above, the culture taken out of a collodion bag, after a stay of 15 or 20 days in the peritoneum of a rabbit, no matter how rich it may be, does not give rise to any growth when reinoculated *in vitro*, in the air or vacuum, in any of the solid or liquid medias ordinarily used in bacteriology. However, cultures very nearly alike those of the bags can be obtained. But for that one must use sterile bouillon for liquid of culture, not inoculated, and which for several weeks has been kept in collodion bags within the peritoneum of a cow or a rabbit. Though free from virulent germs, this bouillon is also modified

by the exchanges which go on through the wall of the sac ; it becomes slightly albuminous ; and above this obtains the quality of becoming useful for the culture, *in vitro*, of the pleuro-pneumonic microbe.

Once we have obtained by the inoculation of a few drops of pleuro-pneumonic serosity in peptone bouillon freshly prepared a culture similar to that of the bags. At least, the bouillon presented after remaining 72 hours in the thermostat the very slight opal aspect and the motile and refringent points which characterize this culture. But we were not able to renew the experiment, nor to make a second culture from that which we had obtained by chance.

This observation, however, confirmed us in the idea that the pleuro-pneumonic virus can be cultivated outside the organism.

What was required was to find a proper media for the culture. We succeeded after long researches. The fluid which has given us the best results is made by the addition of a very small quantity of rabbit or cow serum to the peptone solution, prepared by Mr. Louis Martin, to obtain large quantities of diphtheric toxine. The proportion of serum must not be above one-twenty-fifth (about 4 drops for 5 c.c. of the solution). No culture is obtained if the peptone solution of Witte or that of Chapoteau is used ; and again culture does not take place in presence of inert gases or in vacuum.

The bouillon Martin serum not only allows the keeping up of the culture started during the sojourn in the collodion or reed-cane bags ; it may also give a culture from the start, when it is inoculated with a trace of natural serosity.

Culture *in vitro* of the microbe of pleuro-pneumonia constitutes a great progress ; it will be possible to study its toxine, try to modify its virulency ; it always presents this advantage to preserve the pleuro-pneumonic virulency intact, while it has seemed to us that successive passages through the organism of the rabbit diminish it in a sensible manner. But the degree of receptivity to the pleuro-pneumonic virus varies so much, even in individuals of the same age and same breed, that we do not

dare to be very affirmative. It will be only by a great number of experiments that this question of attenuation of the virus can be solved.

As to the first point (preservation of the virulency by successive cultures *in vitro*), it is well established by the observation of the cow No. 7, mentioned hereafter ; this cow, inoculated Feb. 26, 1898, with 10 drops of a sixth culture, died March 19, with an enormous œdematous swelling, entirely alike those produced by the inoculation of the most virulent pulmonary serosity.

* * *

The discovery of the agent of the pleuro-pneumonic virulency does not only give the satisfaction of an overcome difficulty ; the result strikes higher. It gives the hope to succeed also in the study of such other virus whose microbe remains unknown to this day.

What made the discovery of the microbe of pleuro-pneumonia difficult was : first, its extreme small size ; second, and specially, the very peculiar conditions of its culture in artificial media.

Is it not justifiable to suppose the existence of microbes still smaller, while, instead of remaining *within* the limits of visibility, as it is for this one, are *beyond* them ; in other words, it can be admitted that there are microbes which are invisible to the eyes of man.

Well ! even for those microbes, their study is yet possible, providing a media proper to their culture is found. Even then, in these attempts at cultivation, one will not be satisfied, to judge of his success or failure, with the changes which are present in the aspect or transparency of the media. The culture of the microbe of pleuro-pneumonia is very rich ; still it only gives rise to a slight dubious aspect, a scarcely visible opacity in the fluid ; to be convinced of the reality of the culture one must examine it comparatively with a tube of the same bouillon not inoculated. Therefore, the possibility of a microbial culture without noticeable modifications in the

aspect and limpidity of the fluid can be admitted. Hence, in the supposition that this same microbe should belong to the class of those which are beyond the limits of visibility, the only criterions of its presence and growth by cultivation will be inoculation.

Perhaps, already, some experimenters have obtained such cultures; but they have overlooked them because, the fluid having kept its limpidity, they have thought it useless to inoculate it.

For this running of thoughts, cultivation *in vivo*, with collodion or reed-cane bags, which has been so useful already, has not said its last word; it has no doubt some other surprise in store for us.

CONCLUSIONS.

The agent of pleuro-pneumonic virulency is constituted by a microbe, extremely small; its dimensions, very much lower than that of the smallest known microbes, do not allow, even after coloration, to make out exactly its form.

The microbe grows easily in bags of collodion or of reed-cane placed in the peritoneum of rabbits.

It does not grow when inoculated *in vitro* in media of culture ordinarily in use.

On the contrary, it grows easily, when inoculated in the peptone-bouillon of Martin, to which serum of cow or rabbit is added in the proportion of one part of serum to twenty-five of bouillon.

(*To be continued.*)

[*Written specially for the American Veterinary Review.*]

OBSERVATIONS MADE IN CANINE MEDICINE.

“CONJUNCTIVITIS FOLLICULARIS.”

BY FRANK H. MILLER, V. S., NEW YORK CITY.

With a thorough appreciation of the multitudinous obligations entailed upon the time and patience of the veterinarian who devotes himself to the practice of general veterinary medi-

cine, including as it does a host of ailments existing among several distinct species of animals, I am not entirely surprised at times to find an exceedingly scanty store of really valuable literature at our command upon many of the diseased conditions which we are called upon to treat almost daily. Especially does this comparative dearth become real to us when in the interest of special medicine we seek not only the highest, but all the possible information we can gain upon some certain disease lying more particularly within our special domain. The more closely we inquire into the situation the more convinced we necessarily become that it is not entirely due to a lack of time by the practitioner to devote to the minutiae of diseased processes observed and recorded, but in part also to a too implicit reliance upon the similarity of disease processes as manifest in the various animals and an all but universal tendency to slight the study of just those diseases which present themselves most frequently in every-day practice. With the motive of interesting my professional brother who may be thoughtfully inclined, and from long experience competent to bring forward matters of great interest to us all in just such cases, I will, with the kind permission of your valuable REVIEW, confine myself to a few observations upon that disease of animals known in text-books as "Conjunctivitis Follicularis," but which, in my opinion, from its localized nature in the great majority of cases, might more correctly be designated as "Conjunctivitis Follicularis Locularis." While this condition is not infrequently demonstrated in the horse and other animals, it is from its great frequency and common disastrous results in the dog, beyond doubt, one of the most important pathological conditions which the veterinarian is called upon to treat.

Here is an evidently local condition of a mucous membrane, apparently benign enough in itself, but which from its very location holds in its chain of immediate consequences such disagreeable features as constant and excessive escape of the lachrymal secretion over the face with discoloration of the hair, and only too often its complete removal and the production of a well

defined dermatitis in its course, while not infrequently corneal opacity and ulceration occur with all which that implies regarding permanent injury to vision. It is an almost daily occurrence where small animals are treated to have dogs of all breeds, ages and conditions presented for our consideration, with the history that since a more or less remote date, excessive lachrymation had been noticed, which, be it here remarked, will be found to have gone along without any degree of photophobia (or aversion to light as shown by closed eyes). The weeping has not diminished, but rather increased, under such household remedies as hot saline solutions, etc., not altogether to be despised by the veterinarian, until at the time of presentation photophobia and perhaps corneal complication are becoming patent (so called "film" of kennelmen), and the owner is satisfied that things have gone beyond his or her control. These symptoms may be confined to one or both eyes (more usually the latter). The condition has progressed insidiously from a state which evidently caused but little distress at first to animal or owner, until at present very grave possibilities are plainly in sight.

These cases as they come to us for treatment rarely have any history of particular value to us in forming our diagnosis beyond what I have mentioned. Upon inspection of the general condition of the conjunctiva we have but little difficulty in pronouncing it to be a disease affecting that membrane almost entirely; but we are at a loss to know how to reconcile the rather grave appearance of the conjunctival lamina of the cornea, the excessive lachrymation which in itself contains very scant evidences indeed of the deeper conjunctival disturbances as mucous or pus cells, with the comparatively healthy appearance of the palpebral conjunctivæ, which in very many cases reveals to us a state of true hyperæmia rather than inflammation. Frequently the corneal opacity is casually noticed to be toward the nasal side of that structure and to be in the great majority of cases confined entirely to infiltration into the superficial layer of the same. We may or may not at first be able to distinguish structural defect or erosion-like spots upon its sur-

face with the naked eye. Frequently minute blood vessels are seen radiating from the limbus toward the denser part of the opacity. Provided the animal has not been under treatment with agents which modify accommodation, we can usually see at a glance that the intrinsic muscles and nerves governing them are not manifestly involved.

The use of the ophthalmoscope substantiates our opinion that the deeper structures are not implicated up to date, and that we have to all intents and purposes a local condition to interest ourselves in, which, in view of the corneal conditions, the rather surprisingly healthy appearance of the palpebral membranes, and abundant flow of clear lachrymal secretion, absence of foreign bodies, etc., we are oftentimes, particularly if no erosion of the cornea has been noticed, inclined to mistrust occlusion of the lachrymal duct, especially if one eye only be affected, as is often the case.

We next resort to the application of cocaine solution, that we may push our investigation further. Immediately it takes effect our suspicion of a choked duct is allayed, since the secretion almost immediately ceases to flow over the face. The condition is plainly one which has hypersecretion as one of its symptoms, and not a stenosis of the lachrymal duct, either catarrhal or otherwise. The most common error in the formation of our diagnosis in these cases, in my opinion, crops up right at this point of the examination. We are very liable while the organ is under cocaine to make a thorough and close examination of all the visible mucous membrane, oftentimes using the hand lens, and with its aid almost invariably detecting corneal abrasion more or less extensive, quite omitting to thoroughly examine the posterior aspect of the third lid. Either forgetting or ignoring the fact plainly brought out in the history, of the excessive secretion being long present prior to the corneal symptoms, ignoring the position the lesions hold upon the cornea, we hasten to give our diagnosis as keratitis probably due to irritation, give some form of treatment, oftentimes containing atropine, etc., and, with a word of encouragement to the

owner, send the patient forth, fully expecting a more or less rapid resolution under careful treatment. This diagnosis may be absolutely correct, so far as it goes, but its very incompleteness will almost certainly end in permanent injury to vision, inasmuch as the cause has not been demonstrated.

My personal experience has taught me the importance of carefully locating the relation of these corneal disturbances. So many of them lie internal to a line drawn perpendicularly through the centre of that part of the eye as to serve as a sort of wayside fingerboard to indicate the direction from which the all-important irritation is coming, and besides a most incomplete examination of the eye and its appendages has been carried out where the entire posterior surface of the membrana nictitans has been overlooked and not carefully passed upon. Had we taken the precaution, while the membrane was anæsthetized, to have picked it up carefully with a pair of eye forceps and drawn it well forward and reflected it upon itself and away from the eye and examined its posterior side thoroughly, we would in one and the same moment have been placed in position to have given a clear and complete diagnosis of the case and to have outlined a treatment calculated to speedily and certainly overcome the disease and check the ravages caused by it, rather than to have prescribed for a series of symptoms, leaving the process proper to itself and even aiding its progress, perhaps, by the use of certain agents as atropine, calomel, etc., since they appear almost invariably to greatly stimulate the condition, causing the entire chain of symptoms. In such an examination of a patient suffering from this particular form of conjunctivitis we are able to detect upon that portion of the mucous membrane covering the tertiary lid near, but invariably a short distance removed from, the fornix, a well-defined patch of granulations varying in area from a very small spot in some cases to almost the entire surface in others. The individual granulations are seen when examined by the lens to vary in size from that of the finest to the coarsest particles of sea sand, and in color and consistency from the smallest and softest semi-

transparent elevation to those of the larger and firmer, which, being perfectly carnified, lend to the patch the aspect of a dull, red, angry mass, according to the severity of the implication.

Having fully observed the local condition, we naturally enough turn next to a consideration of causes before attempting to outline treatment. As already remarked, the literature upon this, as many other diseases, is singularly scanty and, unfortunately, very conflicting. Fröhner and Möller, for instance, whom, from exceptional opportunity and special qualifications, are beyond doubt the greatest authorities upon this particular subject, quite disagree as to its cause. While they both seem to consider the granulations as the outcome of hypertrophy of the preëxisting lymphoid tissue in the conjunctiva, Fröhner looks upon the cause of this hypertrophy as arising from external irritation transmitted direct from the eye-ball, as dust, smoke, irritating gases, etc., and holds the corneal disturbances, and later symptoms of catarrhal conjunctivitis, etc., as entirely secondary to the formation of granulations, while Möller reverses the order and maintains that the granulations are secondary to the inflammatory changes going on in other parts of the eye or its appendages.

Personal experience both in the European clinics, where these very deductions have been made, as well as in private practice here, has almost convinced me that we cannot entirely ignore either theories, if we would reach the true etiology of this disease. That a chronic conjunctivitis may and occasionally does give rise to hypertrophy of the lymphoid tissue, not only of the lids, but upon the posterior aspect of the membrana nictitans, it would be idle to deny, but the very fact of animals suffering so frequently from not only severe but specific affections of the conjunctiva, as marked in distemper, for instance, without developing this particular chronic form of granulation which so commonly leads on to those disastrous results, goes far to convince me that the common cause does not lie in a general conjunctivitis. The increase in size of the follicles during those diseases is probably more of resorptious irritation,

since under those conditions it seems to have quite as great a tendency to involve lymphoid tissue in the palpebral conjunctiva as that lying hidden behind the tertiary membrane, and once the general inflammatory condition of the membrane subsides, the swollen tissue almost invariably disappears. It is in these cases a simple inflammatory hypertrophy, not truly an hyperplasie as the microscope reveals in examination of the majority of these cases in question.

Pre-existing conditions in the animal seem to play an extremely important role. While I am fully convinced of the close relations that such local irritants as mentioned by Fröhner bear to the presence of the patches of granulation, I cannot deny that a great percentage of the cases come especially among dogs, where from the nature of their external surroundings such influences would at least in great part be entirely wanting. That it should prevail among certain species of animals, as the dog, more than others, as the horse and cat, and that even certain types of animals should under similar circumstances be more frequently affected than others of the same species, seems to me to lend color to the possibility of anatomical as well as physiological factors being involved in each individual case.

I have seen this disease set up with the most disastrous results in valuable kennels from the use of lime wash upon the walls, and have treated a great many animals suffering equally when the cause could not be traced so definitely, and I must say plainly that I believe predisposition has much more to do with this condition than we have hitherto supposed.

Regarding treatment we have several alternatives, the desired end of all being to remove the rough, irritating granular surface as quickly and safely as possible, and thereby check the untoward symptoms which have already appeared in the eye proper from their ceaseless friction.

Since in very many of these cases the corneal symptoms are quite grave at the time the animal is presented, the period when mild medicinal treatment might suffice to at least hold matters in check has been lost to the veterinarian. I have made use of

mineral astringents in various strengths, with a fair amount of satisfaction in cases where symptoms were not too urgent and the granulations were but slightly organized or carnified, but have almost entirely abandoned that practice in favor of the thorough curetting of the surface with a dull instrument (generally using a small bone scoop), under cocaine anæsthesia. The curetting in my hands has proven far more rapid and effectual when properly carried out, and has the great advantage of leaving the healed surface in a much more normal condition than where repeated applications of escharotics have been used, this not infrequently giving a slight tendency to distortion of the fibrous lamina of the appendage when used in over-strength. After curetting I prescribe frequent spraying with 3 p. c. boracic acid solution.

In all cases where the corneal symptoms are marked by pain and abrasion, I invariably select the operation of excision of the entire offending membrane, and look upon local treatment by medicinal applications as the greatest mistake. Time is everything in these severe cases in saving vision, and there is no time to be lost in speculative treatment.

The operation of excision is extremely safe and simple and the results are immediate and, in the vast majority of cases, highly satisfactory, even where the secondary lesions are most serious.

To operate, produce a thorough anæsthesia of the eye and its appendages with 4 p. c. cocaine solution, taking the precaution to pick up the membrane and drop a few drops upon its posterior surface.

The instruments required are few and simple—a pair of small, flat dressing scissors, with blunt point curved laterally, one pair of eye forceps, one medium-sized curved needle and double thread of silk floss, all to be aseptic, and placed in basin of sterilized water.

Open the eyelids, spray out the eye thoroughly with 3 p. c. solution of boracic acid. Place a tape about the nose and muzzle the animal if it be a dog, drawing the same moderately tight

to occupy the patient's attention. Pick up the membrane by its margin with the forceps, and drawing it forward, transfix it from inward to without with the needle, form a short loop by the thread and remove the needle. By the thread draw the membrane far forward and after surveying the granulation field thoroughly, begin the excision with the scissors, carrying it well out around the granules, that none may be left behind. Avoid all haggling or mutilating of the operation field. Also avoid wounding the cornea or sclerotic by the silk while transfixing the membrane. Allow the eye to close for a few moments to check the hemorrhage, and then spray out coagula with the boric solution and the operation will be completed. My after treatment consists in hot baths of sterilized water and frequent sprays of the above-mentioned solution of boracic acid. Even where there exists much corneal opacity and erosion I find this simple procedure produces the best results. I can from experience say that I consider atropine in any form detrimental in these cases. Not only has it a tendency to disturb the lymph follicles in the conjunctiva generally, but it lowers the vitality of the individual cells, and so tends to ulcerative action in corneal abrasion as are so frequently present.

This operation in question has come down to us from the days of the empirical practitioner, and since it was performed by him for the relief of countless conditions both real and imaginary, we cannot wonder that it should be looked upon today with a degree of disapprobation by veterinarians. We are placed in a position very different from our ancient predecessors, by reason of our ability to properly select the particular form of treatment which gives the greatest hope of perfect results in any class of disease. Prejudices must not weigh to the disadvantage of our patients. We demand results. Practitioners there are who will still contend that removal of the membrana nictitans is a mutilation, but in the treatment of this particular condition it is to my mind entirely justifiable. The removal of a portion of the body whose presence, so far as I have been able to discover, is of importance to the judge of ani-

imals at places of exhibition rather than an essential in all cases to the animal's well being, should be a small consideration when a matter so vital as partial or total loss of vision is under consideration from its disease.

My personal experience has taught me its value as an operation and its timely selection has saved eyes where purely medicinal treatment would beyond doubt have proven futile. What we most require in connection with the study of this peculiar form of conjunctivitis is a deeper insight into its causes, predisposing and exciting, that we may if possible by our knowledge diminish the frequency with which it occurs as well as improve our methods of treatment.

I trust those of our profession who may have valuable notes, especially regarding its etiology, may feel kindly disposed and place them upon record for the general good, for only by this method can our knowledge be of the greatest value in arriving at truly scientific deductions.

ASEPTIC CASTRATION OF MALE ANIMALS.

GRADUATION THESIS BY R. J. STANCLIFT, STUDENT, NEW YORK
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History.—The operation of castration is one that has been performed upon all domesticated animals and upon man for ten centuries B. C. (1.) The castration of man being first spoken of in the Bible in Isaiah, 56, 3; and ancient writers claim that the operation was in vogue before the time of Semiramis. (2.) Andramyties, the King of Lydia, is said to have sanctioned castration in both males and females of the human race for social reasons.

It is still practiced upon man in the Eastern countries that are of Mohammedan belief; also in China, and in some parts of India at the present time.

The castration of the female domesticated animals was known to the Danes in the sixteenth century, and they operated successfully upon sheep, swine, cows, and even mares. The

bitch is spoken of as being operated upon about the first of the present century.

These operations are performed upon cattle and swine very extensively in the Western and Southern States, and upon the bitch throughout the whole country at the present time.

The emasculation of the male domestic animals is of double importance in the animal industry, as it renders the animal more gentle and docile and more obedient to his master's will, as in the gelding. It also increases the production of meat both in quantity and quality in animals, which are kept for that purpose, as we see in the emasculated bull, the steer, or in the case of the emasculated boar, the barrow. This is perhaps more forcibly illustrated in the emasculation of the cock, which increases his weight and produces flesh of a much superior quality. The operation has been found to give best results in the meat-producing animals when performed at an early age.

Anatomy.—Before taking up the operation itself, it would be well to glance briefly at the anatomy of the seat of the operation.

In the normal animal, we have the testicles situated in the scrotum, between the thighs, in the horse and ruminants, while in the pig, they are situated more posteriorly and just below the perineum.

The scrotum is composed from without inwards of, first, the common integument, which is reflected from the thighs over the scrotum. This is thin and soft. It is covered with soft, downy hairs, and has a great number of sebaceous glands, the secretion from which keeps it soft and flexible. It is marked mesially by a longitudinal raphe, which indicates a division into two portions, a right and left. Beneath the common integument, we have the dartos, a thin layer of muscular and elastic tissue, which is derived from the abdominal tunic and is continuous with it. This may be said to be the proper scrotal tunic, as besides covering the testicle, it sends a fold up between the testicles, called the septum scroti, corresponding to the outer longitudinal raphe. Beneath the dartos is the spermatic fascia,

which is derived from the external oblique muscle. This is attached around the external abdominal ring and passes down over the cord and testicle. Inside this, is the cremasteric fascia, which is an expansion of the cremaster muscle. This arises from the iliac fascia and passes down the inguinal canal and spermatic cord to surround the testicle. This fascia forms only an incomplete covering, while still deeper is the infundibuliform fascia, which is an extension from the transversalis abdominalis muscle fascia. This is funnel-shaped and commences at the internal ring, passing down over the cord and testicle, and on the inside is continuous with the outer serous covering of the testicle.

Then we have the two peritoneal coverings, which are brought down by the testicle when it passes from the abdominal cavity to the scrotum. The outer one is spoken of as the tunica vaginalis reflexa, and is united by cellular tissue to the infundibuliform fascia, on its outer surface.

The inner serous tunic, known as the tunica vaginalis propria, is attached on its inner side to the outer fibrous coat of the testicle; and the surface of these peritoneal coverings, which are in contact with each other, are lined with a single layer of squamous epithelium (endothelium) and thus forms a large lymph space, which is continuous with the peritoneal cavity, being, in fact, a portion of it, which was carried down with the testicle when it passed into the scrotum.

The testicle is the essential reproductive gland of the male. It is composed of an outer fibrous covering, from which trabeculæ extend inwards, dividing the gland up into pyramidal shaped spaces that contain the active secreting gland substance. It is surmounted on the superior border by the epididymis, which is the first portion of the excretory canal and which terminates in the vas deferens.

The testicle is suspended in the scrotum by the spermatic cord, which is composed of the vas deferens, posteriorly, and on the anterior border we have the great testicular or spermatic artery, which is very tortuous; and between these, we have a

band of gray muscular fibres, and also the small testicular artery. These are all bound together by loose cellular tissue, which also contains nerves, lymphatics and the accompanying veins of the arteries. The spermatic cord extends from the testicle up to the external abdominal ring; inferior to this, it has the covering of the scrotum. It enters the inguinal canal and passes into the abdominal cavity, through the internal abdominal ring; here we will leave it, as for our purpose it is not necessary to trace it any further.

METHODS OF OPERATING WHICH ARE IN VOGUE AT THE PRESENT TIME.

The operation consists in the removal of the essential organs of generation, the testicles, or by bringing about a cessation of their functions. The methods used at the present time to bring this about can be divided into three classes.

The first class would include those operation, by which the envelopes of the testicle are cut through and the organ removed by section of the spermatic cord. This would include simple section of the cord with a sharp knife, which is claimed to be one of the oldest methods, and is still used upon some of the smaller animals. With larger animals, there is danger of profuse hæmorrhage.

Scraping is but a modification of the preceding operation, and consists in using a dull instrument to scrape the cord slowly through. This, by lacerating the walls of the artery hastens clot formation but is sometimes followed by severe hæmorrhage.

Torsion of the cord :—This is brought about after the envelopes have been cut through by grasping the cord at the point where it emerges from the incision, with forceps or the hand, and fixing it firmly; then with forceps or the hand grasping the cord just above the testicle, and by twisting to rupture the cord between these two points. This, by twisting and lacerating the fibrous coat of the arteries, occludes them and checks the hæmorrhage.

Crushing of the cord :—This is very common at the present

day, and is accomplished by the use of the ecraseur, or by the emasculator, an instrument which has attained great popularity in the last decade; and, last, section of the cord by actual cautery. This is accomplished by applying a broad wooden clamp upon the cord up as close as possible to the scrotum and then applying a dull red hot cautery to the cord and severing it with this. The stump of the cord is cauterized until it is carbonized, and as soon as this is accomplished is released from the clamp.

The second class is but a modification of the first. Here the envelopes are incised the same as in the first, only there are applied certain means of pressure to the cord which are allowed to remain on. These are applied before amputation of the testicle, and consists of two methods—the application of clamps or of a ligature. The method of applying clamps is a very ancient mode of operating. It is performed in two ways—the covered and the uncovered.

In the uncovered operation, the envelopes of the testicle are incised and the testicle removed from the envelopes. The clamps are applied to the cord above the epididymis and secured; then, the testicle and the remainder of the cord below the clamp amputated with a sharp scalpel. The clamps are usually made of wood and are two semicylindrical pieces joined together with strong cord. The surfaces that come in apposition usually have a longitudinal groove, which helps to prevent slipping, and by some operators this is filled with caustic paste. The clamps are usually allowed to remain on from thirty-six to sixty hours.

The covered operation.—In this, the envelopes are incised down to the cremasteric fascia. This is carefully dissected away from the outer envelopes and then the clamps are applied over the remaining unopened envelopes and the cord and secured here; then the testicle and surrounding envelopes are excised.

By ligation.—This is done by applying a ligature over the cord, after exposing the testicle by ligating the spermatic

artery or by ligating over the inner envelopes after separating them from the outer, the same as for the covered operation, with the clamps.

In all these cases, the amputation is below the ligature.

In ruminants, which have a long pendulous scrotum, some operators have ligated the entire scrotum and allowed it to slough off. In these cases, an elastic ligature is preferable.

The third class would include those modes of operating where the scrotum is not incised, or a portion of it destroyed by the operation. These consist in either crushing the spermatic cord or operating by double subcutaneous torsion.

Crushing the cord is only practicable in the pendulous scrotum of the ruminant. The cord enclosed in the scrotum is placed between two straight sticks, which have squared edges, and these are struck until the cord is crushed sufficiently to cause atrophy of the testicle to follow.

The double subcutaneous torsion of the testicle is produced by so manipulating the testicle in the scrotum as to produce a twisting of the spermatic cord and thus cause an interference with the blood supply of the testicle and atrophy from innutrition. This operation is also only applicable in ruminants, on account of its requiring a pendulous scrotum. Both are used in southern France, but are not in general use, as they are not always certain in producing the desired effect, besides having the disadvantage of the persistent atrophied testicle in the scrotum, which might be objectionable. For these reasons, the third class will not be considered any further.

The first two classes leave the scrotum open after the removal of the testicle. We find our veterinary writers mentioning swelling, (3) secondary hæmorrhage and suppuration (1) as the normal results of these methods of castration; also of peritonitis, abscess of scrotum, tetanus, champignon or schirrous cord, gangrene of the scrotum and glanders (4) as the abnormal sequelæ. All of these results, except the swelling, which may be an œdematous condition of the scrotum without infection, and the secondary hæmorrhage may be traced directly to bac-

terial infection ; for tetanus has been proved to be due to a specific micro-organism, the bacillus tetani, as also has glanders to the *B. mallei*. Champignon or schirrous cord, or fistula of the scrotum, has been found to be due to infection with botryomyces (5), though it has not been proven that all of these cases are due to infection with this specific micro-organism.

The other sequelæ may be produced by a number of the pathogenic bacteria, which are pus producers, or are capable of producing septicæmia ; bacterial infection is the danger to be feared in the operation and it is only to this that the bad results and fatalities can be traced. If we can carry on the operation without this infection, we have removed this danger, be it much or little.

The question arises, how can we prevent this infection ? The majority of the veterinarians of the present day try to perform the operation under more or less complete antiseptic precautions, but after the operation is completed, even provided there has been no infection during this time, the wound is left open, and in all the methods, except the covered operation, there is a direct opening into the peritoneal cavity. Even in the covered operation, there is left the open scrotal wound.

These wounds always become infected to a greater or lesser degree, but those where there is an opening into the peritoneal cavity are the more dangerous. If, as in the majority of cases, the infection is slight, we have a correspondingly slight discharge of whitish creamy inoffensive pus, which some writers have called laudable pus, but which with our present knowledge of bacteriology cannot be recognized as such, for, clinically, we do not get pus formation without infection, and certainly infection is not laudable.

In these cases, there is usually healing by the granulation process, while if we get a virulent infection, we have what has been called the abnormal results of castration, as peritonitis, abscess of the scrotum, gangrene ; or, if the infection is due to specific micro-organisms, tetanus, glanders or champignon, and the correspondingly bad results.

With the necessary environment of our domesticated animals, it is impossible by these methods of procedure to have practical antisepsis, which is necessary to have healing by primary adhesion. By obtaining healing by primary intention we do away with those sequelæ which are due to infection and thus lessen the danger of the operation.

In considering how we are to prevent infection, we must first determine how and where the infection can come from. This can all be summed up in three ways :

First, the infecting material may be upon the seat of the operation.

Second, it may be brought to the wound by the operator or his assistants.

Third, it may gain entrance after the operation has been performed.

These can be best considered in the order as given.

First, to prevent infection from seat of operation. Here, upon the skin, we have a great variety of micro-organisms, and these may consist of those which live upon the epidermis, and those obtained from the litter or earth. The latter are the more dangerous, as in these we may have the bacillus tetani or the bacillus of malignant œdema.

The seat of the operation should be cleaned thoroughly with soap and water and then disinfected afterwards with some good antiseptic, which can be washed off with distilled or boiled water, at the time of the operation.

Second, infection by operator or assistant. Here the infecting agents may be brought by the instruments used or by the hands or clothes of the operator. To prevent this, the operator's hands and clothes should be perfectly clean and the hands disinfected, the instruments sterilized, preferably by boiling or by a good antiseptic, and nothing allowed to touch the wound but what has been disinfected.

Third, the infection of the wound after the operation. In our domestic animals, we cannot apply any bandages or dressings to the scrotum, which can be kept in place, and thus obtain

healing by primary adhesion, and if the wound is left open it is certain to become infected, so the only recourse is to close the wound by sutures and apply antiseptics to the parts until healing occurs.

The Aseptic Operation.—With a view of obtaining these results, a series of operations were carried out under antiseptic precautions at the clinic of this college. The general method of proceeding was as follows :

The animal was kept in the general ward one day in order to prepare it for the operation, and was fed a restricted laxative diet. The body of the animal was thoroughly cleansed and the sheath and scrotum well washed with soap and water.

At the time of operating, the patient was taken to the operating room, placed upon the operating table and chloroform administered. While this was being done, the scrotum and sheath were washed thoroughly with soap and water, after which the parts were wet well with sublimate solution, 1-1000; also the inner surfaces of the legs were moistened with this solution. As soon as the patient was anæsthetized the upper hind leg was drawn upward and forward out of the operator's way.

The instruments to be used were sterilized by being boiled for ten minutes in water, to which was added sufficient sodium bicarbonate to prevent oxidization of the instruments. The operator's hands were thoroughly cleansed with soap and water, great care being taken to clean the finger-nails, afterwards washing the hands in sublimate solution, 1-1000. The sublimate solution was then washed off the scrotum with boiled water; the upper testicle grasped by the operator's hand and an incision made through the scrotum at its most dependent part, parallel to the longitudinal raphe and from one to two inches on either side of it. This incision was just large enough to allow the testicle to slip out endwise.

The testicle was grasped by the hand and gently drawn well out. In cases I, II and III this was held by an assistant; but in the others, was fixed with a clamp.

A half-curved needle, threaded with sterilized catgut, was

passed through the middle of the cord, where it emerged from the incision, or where it was held by the clamp as close to the instrument as possible. The anterior part of the cord was ligated, and without cutting the ligature, the whole of the cord was included in it; the cord severed below with the emasculator; the proximal end released from the clamp and any blood present washed off with boiled water, and the wound closed with sterilized catgut.

The operation was repeated on the other side, after which the scrotum was washed with sublimate solution, the released leg again secured to the table and the patient allowed to recover from the anæsthetic, when he was returned to the general ward, where he was fed light for the first few days. Any deviation from this plan will be mentioned under the report of such cases.

Report of Animals Operated Upon.—No. I (546) was a black stallion, thirteen years old, weight about 1200 pounds, in good condition. Sept. 26, 1897, admitted to general ward and prepared for operation; Sept. 27th, 2 P. M., patient placed upon operating table and operated upon under strict aseptic precautions; closed wound with interrupted sutures; dressed with iodoform. Sept. 28th, 8 A. M., temp. 100.2; 4 P. M., temp. 100.1; very slight amount of serum exuding from wound. Sept. 29th, temp. 2 P. M., 100.2; 4 P. M., 100.2. There were a few drops of serum exuding from the wound. Sept. 30th, 9 A. M., temp. 100; 4 P. M., temp. 100.4; no discharge of serum from wound. Oct. 1, 9 A. M., temp. 100.2; no discharge from wound. While animal was under observation, the scrotum was washed once daily, with sublimate solution, 1-1000. The owner removed animal Oct. 1st and reported later that the wounds healed without any suppuration.

No. II. (516) was a bay stallion, three years old; weight about 1000 pounds, in medium condition. Sept. 30, 1897, admitted to ward and prepared for operation. Oct. 1, 2 P. M., placed animal upon operating table and operated under strict aseptic precautions, closed wound with interrupted sutures;

dressed with iodoform. Oct. 2d, 9 A. M., temp. 101.2 ; pulse 36, resp. 12 ; 2 P. M., temp. 101.2 ; pulse 36, resp. 12 ; animal eating half ration ; very slight exudation of serum from wound. Oct 3d, 9 A. M., temp. 101.1, pulse 38, resp. 12 ; 6. P. M., temp. 101. ; pulse 36, resp. 12 ; animal eating well ; looking well ; no exudation of serum from scrotum. Oct. 4th, 9 A. M., temp. 101, pulse 37, resp. 12 ; animal looks well ; scrotum still somewhat enlarged. While under observation the scrotum was washed once daily with sublimate solution, 1-1000.

The owner removed animal Oct. 4th, and reported later that the wound healed without any suppuration.

No. III. (738) was a large well developed Berkshire boar, five years old, in good condition, weight about five hundred pounds. Feb. 2, 1898, admitted to ward 2 P. M., was thrown and confined with ropes ; the scrotum, scrubbed with soap and water, then rinsed off with sublimate solution, 1-1000, and this washed off with boiled water, then proceeded with the operation. The testicles were removed through small incisions in the lower portion of the scrotum ; the cord was ligated and severed below ligature with the emasculator. The wound was closed with a continuous suture of silk and the scrotum wet with sublimate solution. Feb. 3d, the animal, stiff from struggling when tied, but bright, eating half ration. Scrotum about as large as before operating ; no discharge of serum. Feb. 4th, scrotum about the same ; no serum from wounds ; appetite better. Feb. 5th, scrotum slightly decreased in size ; no discharge of serum from wounds. Feb. 6th, animal very lively ; scrotum slightly smaller. Feb. 7th, animal eats all he can get ; scrotum about two-thirds as large as before operating. Feb. 8th, scrotum about one-half size as it was before operating, and the epithelium appears to have joined over the wounds. Feb. 9th, scrotum about one-third original size, and as wound seemed to be entirely covered with epithelium, the patient was discharged.

The owner reported later that the animal recovered without incident.

No. IV. (855) was a dark bay stallion, five years old, weight

about 1050 pounds, in medium condition; Mar. 24, 1898, admitted to ward and prepared for operation. Mar. 25, 11 A. M., placed animal upon operating table and operated under strict aseptic precautions, closed wounds in scrotum with continuous suture of catgut. There was some subcutaneous hæmorrhage, which produced a hematoma on the right side. This was about the size of the testicle. 4 P. M., temp. 100; pulse 40; resp. 13. Mar. 26th, 8 A. M., temp. 101.1; pulse 43; resp. 12. 8 P. M., temp. 101.1; pulse 38; resp. 14; animal bright; scrotum about the same size; nothing exuding from the wound; Mar. 27th, 9 A. M. temp. 100.8; pulse 36; resp. 12; no exudation from wounds. Mar. 28th, 9 A. M., temp. 101.6; pulse 36; resp. 12; 3 P. M., temp. 101.9; pulse 36; resp. 12; scrotum about the same. Mar. 29th, 8 A. M., temp. 100.6; pulse 40 resp. 12; 3 P. M., temp. 102.1; pulse 38; resp. 12; the scrotum has decreased in size somewhat, but the sheath has become oedematous. Mar. 30th, 8 A. M., temp. 100.2; pulse 36; resp. 12; animal is in good spirits, but during the night broke the sutures on the right side (this being the side that the hematoma was on); the wound was now opened, the clot removed, and the parts irrigated with sublimate solution, 1-1000. A portion of the clot was taken and agar and bouillon tubes inoculated with it. 3 P. M., temp. 100.2; pulse 36; resp. 12. Mar. 31st, 8 A. M., temp. 103; pulse 46; resp. 15; 3 P. M., temp. 101.8; pulse 38; resp. 12; scrotum about the same size; no pus on the right side. Apr. 1st, 8 A. M., temp., 101.8; pulse 40; resp. 12; 3 P. M., temp. 103; pulse 50; resp. 14; opened and washed out left side, but there was no infection seemingly. The swelling has gone down greatly. Apr. 2d, 8 A. M., temp. 105; pulse, 48; resp. 14. Animal dull, did not eat entire breakfast. 3 P. M., temp. 106; pulse 68; resp. 16; washed out both wounds in scrotum, with sublimate solution, also gave ball composed of Barbadoes aloes, drachms vi; sulph. quinine, ounce i. Apr. 3d, 8 A. M., temp. 103.8; pulse 64; resp. 14. 3 P. M., temp. 104.2; pulse 55; resp. 14; animal eating well; no pus from wound. Apr. 4th, 8 A. M., temp. 104.5; pulse 42; resp. 14; very slight

swelling of scrotum; no pus. Apr. 5th, 8 A. M., temp. 101; pulse 46; resp. 12; 3 P. M., temp. 102; pulse 42; resp. 12; no pus. Apr. 6th, 8 A. M., temp. 102.4; pulse 42; resp. 12; 3 P. M., temp. 102.6; pulse 42; resp. 12; Apr. 7th, 8 A. M., temp. 100.4; resp. 12; pulse 38; 3 P. M., temp. 100.2; pulse 36; resp. 12; the scrotum normal in size; the left wound has closed entirely, the right nearly closed. Apr. 8th, 8 P. M., temp. 99.8; pulse 36; resp. 12; 2 P. M., temp. 100; pulse 36; resp. 12; no discharge from wound. The owner took animal home and reported ten days later that the wound healed without any perceptible pus formation. The cultures that were made from the hematoma on Mar. 30th, developed a pure culture of the *staphylococcus pyogenes aureus*. Each day the animal was under observation, the scrotum was washed twiced daily with sublimate solution 1-1000.

No. V. (879) was a dark bay stallion, six years old, weight about 1000 pounds, in good condition. Apr. 1, 1898, admitted to ward and prepared for operation. Apr. 2d, 9 A. M., animal placed upon table and operated upon under strict antiseptic precaution; closed wounds with interrupted sutures. Apr. 3d, 9 A. M., temp. 101; resp. 14; pulse 38; 5 P. M., temp. 101.2; resp. 14; pulse 40; animal bright, eating well; scrotum about size as before operating. Apr. 4th, 8 A. M., temp. 101.2; pulse 40; resp. 14; 3 P. M., temp. 101.3; pulse 40; resp. 14; scrotum same; no exudation of serum. Apr. 5th, 8 A. M., temp. 100.4; pulse 36; resp. 12; 3 P. M., temp. 101; pulse 38; resp. 12; Apr. 6th, 8 A. M., temp. 101; pulse 44; resp. 14; 3 P. M., temp. 101.2; pulse 42; resp. 12; scrotum about the same; no exudation of serum. Apr. 7th, 8 A. M., temp. 101; pulse 40; resp. 12; 3 P. M., temp. 100.8; pulse 37; resp. 12. Apr. 8th, 8 A. M. temp. 100.6; pulse 38; resp. 12; 3 P. M., temp. 101; pulse 38; resp. 12; scrotum considerably smaller; no exudation from wound. Apr. 9th, 8 A. M., temp. 100; pulse 36; resp. 12; 3 P. M., temp. 100.8; pulse 38; resp. 12; scrotum about one-half original size. The epithelium has united over the wounds, so that the patient was discharged at this time.

No. VI. (1027) was a bay yearling colt of medium size, in fair condition. May 3, 1898, admitted to ward and prepared for operation. May 4th, 11 A. M., placed animal upon operating table and operated under usual precautions. The cord was ligated with sterile silk and the scrotal wounds closed with interrupted sutures of sterile silk, and over this wound gelatin applied (8). May 5th, 9 A. M., temp. 101.6; 3 P. M., temp. 101.5; very slight swelling of scrotum. May 6th, 3 P. M., temp. 101.3. May 7th, 3 P. M., temp. 102.2. May 8th, 9 A. M., temp. 101.6. May 9th, 9 A. M., temp. 102.7. May 10th, 3 P. M., temp. 101. May 11th, animal discharged. During time since operation, the animal was bright and ate well. To-day the wounds appear to be covered with epithelium. There was no exudation of serum at any time.

No. VII. (1029) was a yearling colt of medium size in fair condition. May 4, 1898, admitted to ward and prepared. May 5th, placed animal upon operating table and operated under aseptic precautions; the cord was ligated with silk, and the scrotal wounds were closed with a continuous suture of sterile silk, over which was applied wound gelatin. May 6th, temp. 100.6; scrotum was not swollen at all; the patient was feeling well. May 7th, 8 A. M., temp. 101.8; 3 P. M., temp. 102; very slight swelling of scrotum. May 8, 8 A. M., temp. 102; 3 P. M. 101. May 9th, 8 A. M., temp. 101.6; 3 P. M., 101.8. May 10th, 8 A. M., temp. 101.5; 3 P. M., temp. 100. May 11th, temperature was not taken. May 12th, 2 P. M., temp. 101.2; animal discharged. During the time since operating the patient had been in good spirits and eating well, and there had been no discharge of serum from wounds. When discharged the epithelium was united over the wounds.

No. VIII. (1025) was a brown four-year-old colt, in medium condition; weight about 950 lbs. May 2, 1898, admitted to ward and prepared for operation. May 3d taken to operating room and operated upon under septic precautions. The covered operation was performed and was ligated with silk; scrotal wounds closed with continuous suture of silk. May 4th, 4 P. M., temp. 101;

scrotum swollen somewhat. May 5th, 9 A. M., temp. 101.7; 3 P. M., 102.2. May 6th, 9 A. M., temp. 100.7; 3 P. M., temp. 101.7; swelling of scrotum much increased. May 7th, 9 A. M., temp. 101; 3 P. M., temp. 101.9; scrotum about the same. May 8th, temperature not taken. May 9th, 9 A. M., temp. 105.5; 3 P. M., 102.8; scrotum very badly swollen and suppurating somewhat. Opened up wounds and found a large hematoma on each side, which was doubtless due to the spermatic artery slipping upward out of the ligature and bleeding quite extensively. Removed hematoma and washed out scrotal cavities with sublimate solution. May 10th, 9 A. M., temp. 101.6; 3 P. M., temp. 103.4; swelling markedly decreased; slight discharge. May 11th, 3 P. M., temp. 103; swelling still decreasing. May 12th, 9 A. M., temp. 101.3; 3 P. M., temp. 101. May 13th, 9 A. M., temp. 100.6; 3 P. M., temp. 102.4; swelling about disappeared; no discharge. Each day, since opening wounds in scrotum, it was washed out with sublimate solution; discharged.

No. IX. (1055) was a black four-year-old colt, weight about 1000 lbs., in good condition. May 9, 1898, admitted to ward and prepared for operation. May 10th, placed upon operating table and operated upon under aseptic precautions; ligated the cords with silk; closed wound with continuous sutures of silk, over which was placed wound gelatin; at 4 P. M., temp. 101. May 11th, 3 P. M., temp. 100.6; scrotum swollen very little. May 12th, 9 A. M., temp. 100.7; 3 P. M., temp. 101; no change in scrotum. May 13th, 9 A. M., temp. 99.8; 3 P. M., temp. 100.8. May 14th, 3 P. M., temp. 100.8; slight decrease in swelling of sheath. May 15th, 9 A. M., temp. 99.4. May 16th, 9 A. M., temp. 100.5; 3 P. M., temp. 100.5; there is no appreciable swelling in sheath or scrotum. May 17th, 9 A. M., temp. 100. The epithelium is apparently closed over the wounds; patient was discharged.

No. X. (1062) was a bay colt, one year old, of medium size and in moderate condition. May 10, 1898, admitted to general ward and prepared for operation. May 11th, the animal was placed on operating table and operated upon under aseptic

precautions, ligated the cord with silk, closed scrotal wounds with silk, and applied wound gelatin. Temperature before operating, 101.2. May 12th, 9 A. M., temp. 101.2; 3 P. M., temp. 101.8; no swelling of scrotum. May 13th, 9 A. M., temp. 101.2; 3 P. M., temp. 102.2. There is a very slight swelling of the scrotum. May 14th, 3 P. M., temp. 102.2; swelling about the same. May 15th, temperature not taken. May 16th, 3 P. M., temp. 101. May 17, colt out in paddock, did not take temperature. May 18th, discharged; the scrotum not swollen, and the wound apparently closed over with epithelium.

No. XI. (1063) was a bay stallion, seven years old; weight about eleven hundred pounds, in medium condition. May 11, 1898, animal admitted to general ward and prepared for operation. May 12th, 11 A. M., placed upon operating table and operated upon under aseptic precautions, ligated the spermatic artery with silk, closed scrotal wounds with silk, and applied wound gelatin; 11.40 A. M., temp. 100.6, animal recovering from anæsthetic; 2 P. M., temp. 99.4. May 13th, 9 A. M., temp. 101; 2 P. M., temp. 100.8; very slight swelling of scrotum. May 14th, 9 A. M., temp. 101.2; 2 P. M., temp. 101.2; scrotum about same. May 15th, 9 A. M., temp. 102.6; 6 P. M., temp. 101.7; animal quite constipated, for which gave laxative. May 16th, 9 A. M., temp. 100.5; 3 P. M., temp. 101.6. May 17th, 9 A. M., temp. 101.9; 2 P. M., temp. 101.6; scrotum not swollen at all. May 18th, temp. 102; 2 P. M., temp. 101.8. May 19th, 3 P. M., temp. 100.8. The wounds are apparently covered with epithelium; discharged. During the last five days animal was badly constipated, but fully recovered before discharged.

No. XII. (1056) was a black colt, three years old, weight about 900 lbs., in good condition. May 9, 1898, admitted to general ward and prepared for operation. May 10th, placed on table and operated under aseptic precautions; ligated the spermatic artery with silk and closed scrotal wounds with a continuous suture of silk. The animal was removed from table before he was able to stand and causing him to fall, soiling the scrotum and rubbing off the wound gelatin which had been

applied. When he had recovered sufficiently to stand, the scrotum was washed with sublimate solution, and the patient returned to the general ward. May 11th, 9 A. M., temp. 101.2; pulse 39; resp. 14; 3 P. M., temp. 101.2; pulse 39; resp. 14; scrotum about two-thirds original size. May 12th, 9 A. M., temp. 100.6; pulse 36; resp. 12; 3 P. M., temp. 101; pulse 36; resp. 12. May 13th, 9 A. M., temp. 100.6; pulse 36; resp. 12; 3 P. M., temp. 101; pulse 44; resp. 14; scrotum swollen moderately; the sheath swollen somewhat more. May 14th, 9 A. M., temp. 103; resp. 12; pulse 44; 3 P. M., temp. 102.4; resp. 12; pulse 46. May 15th, 9 A. M., temp. 101.4; pulse 39; resp. 12. May 16th, 9 A. M., temp. 101; pulse 37; resp. 12; 3 P. M., temp. 102; pulse 36. A suture was broken on the right side, and there was a small amount of serum exuding. May 17th, 9 A. M., temp. 101.6; pulse 38; resp. 12; 3 P. M., temp. 102.2; pulse 38; resp. 12; the serum still continues to exude from right side; the left side is doing finely; swelling of scrotum much decreased. May 18th, 9 A. M., temp. 101.1; pulse 36; resp. 12; 3 P. M., temp. 101; pulse 38, resp. 12; slight discharge of serum from right side. May 19th, 9 A. M., temp. 101; pulse 36; resp. 12; 3 P. M., temp. 101; pulse 36; resp. 12. May 20th, 9 A. M., temp. 100.4; pulse 36; resp. 12 - 3 P. M., temp. 100.4; pulse 36; resp. 12; the sheath and scrotum is still slightly swollen; the left wound has healed by primary adhesion; and the right is healing by secondary intention, without perceptible pus formation.

No XIII. (1069) was a brown colt, two years old; weight about 800 lbs., in poor condition. May 12th, admitted to ward and prepared for operation. May 13th, placed upon table and operated upon, under aseptic precautions; ligated spermatic artery with silk, closed scrotal wounds with a continuous suture of silk. May 14th, 9 A. M., temp. 101.3; 3 P. M., 102; very slight swelling of scrotum. May 15th, 9 A. M., temp. 101.8; 3 P. M., temp. 102. May 16th, 9 A. M., temp. 101.1; 3 P. M., temp. 100.8; swelling of scrotum gone down. May 17th, 9 A. M., temp. 101.4; 3 P. M., temp. 100.8. May 18th, 9 A. M.,

temp. 100.1. May 19th, 3 P. M., temp. 100. May 20th, 3 P. M., temp. 100; wounds healed over; patient discharged.

TEMPERATURE CHART.

No. OF CASE.	Temp. day of Operation.	TEMPERATURE AFTER OPERATION.									
		1st day	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.	8th day.	9th day.	10th day.
I.—9 A. M.	Not	100.2	100.2	101.	100.4						
3 P. M.	taken.	100.1	100.2	100.4							
II.—9 A. M.	Not	101.2	101.1	101.							
3 P. M.	taken.	101.2	101.1	.....						
III.—9 A. M.	} Tem	peratu re not taken.									
3 P. M.											
IV.—9 A. M.	.....	101.1	100.8	100.6	100.2	103.	101.8	105.	103.8	104.5	101.
3 P. M.	100.	101.1	101.9	102.1	100.2	101.	103.	106.	104.2	103.5	102.
V.—9 A. M.	.....	101.	101.2	100.4	101.	101.	100.6	100.			
3 P. M.	100.	101.2	101.3	101.	101.2	100.8	101.	100.8			
VI.—9 A. M.	Not	101.6	.....	.....	101.6	102.7					
3 P. M.	taken.	101.5	101.8	102.2	.....	.....	101.				
VII.—9 A. M.	Not	100.6	101.8	102.	101.6	101.5	Not				
3 P. M.	taken.	.....	102.	101.	101.8	100.	taken.	101.2			
VIII.—9 A. M.	Not	....	100.7	100.7	101.	Not	105.8	101.6		101.3	100.6
3 P. M.	taken.	101.	102.2	101.7	101.9	taken.	102.8	103.4	103.	101.	102.4
IX.—9 A. M.	.....	.....	100.7	99.8	.....	9.4	100.5	100.			
3 P. M.	101.	100.6	101.	100.8	100.8	.....	100.5				
X.—9 A. M.	.....	101.2	101.2	.....	Not	.....				
3 P. M.	101.2	101.8	102.2	102.2	taken.	101.					
XI.—9 A. M.	.....	101.	101.1	102.6	100.5	101.9	102.				
3 P. M.	99.4	100.8	101.2	101.7	101.6	101.6	101.8	100.8			
XII.—9 A. M.	Not	101.2	100.6	100.6	103.	101.4	101.	101.6	101.1	101.	100.4
3 A. M.	taken.	101.2	101.	101.0	102.4	.....	102.	102.	101.	101.	100.4
XIII.—9 A. M.	Not	101.3	101.8	101.1	101.4	100.1					
3 P. M.	taken.	102.	102.	100.8	100.8	.....	100.2	100.1			

SUMMARY.

The only literature available upon this subject is an article by Frick (6), in which he speaks of Bayer operating upon fifteen cases under aseptic precautions, where he had healing by primary adhesion in four cases on both sides, and in two cases on one side, so that out of thirty operation wounds, ten healed by primary adhesion or thirty-three and one-third per cent. The other wounds healed according to Bayer's opinion better than where operated upon with clamps. Frick, in speaking of Bayer's operation, says he does not think it is practical in private practice, as Bayer only ligated the spermatic artery, and when the animal got up there would be bleeding from the veins.

Frick operated upon some animals under aseptic precautions

No. of Case.	Initial of Operator.	Previous experience in Castration.	Previous experience with the Aseptic Operation.	Mode of Operation.	Mode of Healing.	Complications.
I.	H. W. D.	None.	None.	Ligated spermatic cord. Closed scrotal wounds with interrupted sutures (catgut).....	Primary adhesion.	None.
II.	A. B. K.	2 cases.	do	do	do	do
III.	R. J. S.	15 cases.	do	Ligated cord, closed scrotal wounds with continuous sutures (silk).....	do	do
IV.	R. J. S.	do	Case III.	do (catgut)	Secondary intention without suppuration.	Hæmatoma and infection.
V.	R. J. S.	do	Case III and IV.	Interrupted sutures (catgut) do.....	Primary adhesion.	None.
VI.	H. J. L.	None.	None.	Continuous sutures (silk) do....	do	do
VII.	C. R. P.	do	do	do (used wound gelatin).....	do	do
VIII.	W. L. W.	400 cases.	*	Covered operation, silk ligatures, wound gelatin....	Secondary intention.	Hæmatoma and infection.
IX.	C. W. G.	None.	None.	Ligated cord, silk sutures. wound gelatin.....	Primary adhesion.	None.
X.	W. J. M.	do	do	Ligated cord, continuous sutures (silk), wound gelatin.....	do	do
XI.	A. B. K.	2 cases.	Case II.	Ligated spermatic artery; closed scrotal wounds with continuous sutures (silk gelatin).....	do	do
XII.	R. J. S.	15 cases.	Case III, IV and IV	Ligated spermatic artery. Closed scrotal wounds with continuous sutures (silk) (gelatin).....	Primary adhesion (one side).	do
XIII.	C. B. P.	None.	None.	do.....	Secondary intention (one side).	do
					Primary adhesion.	do

* Had attempted aseptic operation on six horses without chloroform; four by covered operation and two by baring testicles, washing the wounds with sublimate solution, 1-1000, and closing with sutures, none of which were successful.

by what he considered a more practical method. His method was, one-half hour before operating, the animal was given .5 grammes hydrochlorate of morphine. The animal was placed upon his back, and the scrotum, sheath, inner thighs and neighboring parts washed with soap and water. This was rinsed off with sublimate solution, 1-1000, then an incision was made in the scrotum, barely large enough to allow the testicle to be pressed out; when the testicle was exposed, an assistant poured sublimate solution over it. The testicular cord was perforated just anterior to the vas deferens, making two porticns, and ligated each portion firmly with sublimated silk. To prevent the ligature slipping off, a part of the epididymis was allowed to remain on the cord, when the testicle was excised. This, he says, is aseptic and is resorbed. The scrotal sac was washed out with sublimate solution and the wound closed with sutures. The operation was repeated upon the opposite side, and the animal allowed to rise, when the scrotum was again washed with sublimate solution. The instruments used and the operator's hands were disinfected with sublimate solution, 1-1000. There occurred in most of his cases, on the second or third day after operating, a fever, which, he says, may attain 103.6° F., but which was due to aseptic resorption fever and can be differentiated from septic fever, as the animal is bright and eats well in the former, while in the latter there is dullness and no appetite. But in comparison with the results obtained here, it would appear that, where the temperature ran up as high as 103.6° F., there was infection, as is illustrated by case No. IV. Here the animal was bright; but from the clot there was obtained a pure culture of *staphylococcus pyogenes aureus*. The only complication which followed his operation was bleeding, which sometimes appeared after the horse had risen. Frick thinks this is subcutaneous, and says that it does not interfere with healing unless it is abundant so as to press the edges of the wound apart and that hematomata the size of a child's head are readily absorbed.

If larger hematomata appear, the sutures should be taken

out on the fourth or fifth day, the clot removed, and the wound rinsed out once daily with sublimate solution, until healing occurs. It is noteworthy in these cases that we have healing by secondary intention, without suppuration. He castrated twelve horses, which varied in size from a pony to a very heavy draft animal, and in seven cases there was healing by primary adhesion on both sides ; in two cases on one side. The remaining wounds healed by secondary intention, so in twenty-four wounds, sixteen healed by primary adhesion, or sixty-six two-thirds per cent ; but from the results obtained in our operations it seems that it would decrease the danger to use boiled or distilled water to wash the scrotum before making the incisions, and also to wash away any blood after the testicle is exposed, and thus not allow any of the sublimate solution to enter the peritoneal sac of the scrotum, which would increase the danger of infection with the pus producing organisms (7), as the sublimate would act as a chemical irritant and produce the death of the adjacent cells, which would be a medium for bacteria to live upon until they gained a foot-hold and as the sublimate would combine with the albumen of the tissues and form an albuminate, it would not have any inhibitory action upon their growth ; while if such a few obtained entrance without the sublimate solution, the living cells would be able to overcome them and we would have practical sepsis.

Of the thirteen cases operated upon here, ten healed by primary adhesion on both sides and one on one side. The remaining wounds healed by secondary intention, which was much more rapid than it is by the usual methods of leaving the wound open, and in two of these wounds that healed by secondary intention, there was no perceptible pus formation. In all, there were twenty-six wounds, of which twenty-one healed by primary adhesion or eighty per cent. The only complications occurring being hematoma in cases IV and VIII. In case IV the cord was ligated with catgut, which had been preserved in alcohol and which after being applied gradually became softened by the lymph in the tissues and relaxing allowed the spermatic

artery to bleed. In case VIII, the covered operation was performed and the ligature was passed around the envelopes and the cord, but was not drawn sufficiently tight to thoroughly compress and retain the spermatic artery. The ligation over the inner envelopes in the covered operation would be practical in yearling colts and those under that age, but would not be practical, as a rule, in those older than one year.

The temperature of those animals which healed by primary adhesion did not exceed 102.4° F., as reference to the chart on pages 266 and 267 will show, and only in those cases where there was infection was there a high temperature. This would make it appear that the high temperatures reported by Frick were due either to slight infection, or to the introduction of an irritant into the scrotum in the form of the sublimate solution, and that it was not due to the resorption of the ligated end of the cord; but the time at which his high temperatures occurred corresponds to the date at which infection fever usually takes place.

In carrying on these operations, it was found best to make some changes, which appeared to be and proved more practical. The first was the use of sterile silk instead of catgut to ligate the spermatic cord.

The use of silk to close the scrotal wounds was also found best. This was used both as interrupted and continuous sutures. The interrupted suture was found to give the best results, as it was only with the continuous suture that there was any infection, though there were a number which healed by primary adhesion, where the continuous suture was used.

The use of some agent, such as wound gelatin, to apply to the wounds after operation was performed was found to be much more convenient, as it does away with the necessity of applying antiseptics to the scrotum daily until healing occurs. There may be other agents, which would answer the same purpose. The requirements are :

A substance which can be applied to a moist surface and will stick, and when dry it must be flexible and not crack when

bent. The agent in itself must be sterile and capable of remaining so. The method of ligation of the spermatic artery which was performed in the last three cases deserves still further trial, as in two cases there was very little swelling, practically none. In case XII there was considerable swelling, but this can be accounted for by the accident caused by removing the animal from the table before it was able to stand. The principal reason to recommend this method is that we introduce a smaller ligature and cause the death of a less amount of tissue, which must be resorbed.

The objection raised to the performance of the aseptic operation in private practice is that it is not practical and that it requires a skilled operator and great care in reference to technique. The objections can be refuted by reference to the condensed table on pages 266 and 267. This gives the previous experience of the operator in castration, the previous experience with the aseptic operation, the mode of operating and the results obtained. By reference to this, it will be seen that nine different men operated during this series of observations, six of whom had not castrated an animal before, and yet every one of these obtained healing by primary adhesion.

It would appear that if the operation could be carried out successfully by an inexperienced student, that it would be practical in private practice, especially with a surgeon, who has become skillful in the manipulation of the testicle, and who has a thorough knowledge of aseptic surgery. The operating table was used as the method of restraint in connection with the use of a general anæsthetic in these cases, though it would appear that casting an animal upon clean, green turf would be as successful, but the general anæsthetic is almost a necessity to obtain practical antisepsis.

With the present methods of operating, and after treatment of the wounds, the veterinarian cannot expect to obtain any better results than the empiric, who uses the same methods and can do the operation for a much smaller fee than the veterinarian.

It is only under such conditions as will lessen the dangers of it that the veterinarian can expect to command this important operation with proper compensation.

I think that the conclusions that can be drawn from the results of this series of operations are :

First.—The aseptic operation is a practical success in the clinic.

Second.—It would be a practical success in private practice.

Third.—By aseptic methods, we lessen the dangers of castration, and should therefore be able to command these operations.

Fourth.—With our present knowledge of bacteriology, we owe it to the veterinary profession and to our clients, that we should perform all operations by antiseptic methods.

In closing this paper, I would like to acknowledge the assistance received from Profs. W. L. Williams, James Law, V. A. Moore and Mr. R. C. Reed.

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BY AN ACT OF THE NEW YORK LEGISLATURE the veterinarian has been promoted in rank in the National Guard of that State. A squadron is now entitled to two veterinary surgeons, one ranking as first lieutenant and drawing the pay of that grade when in the State service (\$150 per month, finding his own horse and uniform), and the other bearing the title of veterinary sergeant, and drawing \$23 per month. While not what the veterinarian deserves, it is quite an advancement over his former neglected position.

REPORTS OF CASES.

“Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

WHAT IS THE PATHOLOGY OF JAUNDICE?

By FRANCIS ABELE, V. S., Quincy, Mass.

An old carriage mare that had been a pet in a wealthy family for many years, had jaundice. She was supposed to be twenty-three years old.

Her bowels were constipated, fæces were hard, pellets covered with a tough mucous film, color not clayey but almost a red. She refused to eat, not even touching hay or water. She was extremely weak, her hind legs would “tangle up” worse than a horse with azoturia. The mucous membranes, especially of the mouth and the sclerotic coat of the eye, showed a rich saffron color. Was sent for one time in haste, as she was dying. Found her down and in pain. Helped her up by her tail. Gave her laxatives, with calomel, followed by tonic powders of magnes. sulph., nux vom., and fer. sulph. In other words, I gave our empirical treatment of laxatives and tonics.

What was the matter with that mare? You may say jaundice. What is jaundice here? Is it congestion, inflammation, scirrhus or rupture? If either, how did resolution act? These were the questions that came to my mind, and I said, how little we know about the liver.

About two years ago, diagnosed a case as chronic jaundice. Horse had been unable to work for seven or eight months. Was quite old. Called Dr. Burchstead in consultation. Do not recall the exact treatment, but patient got to work inside of two weeks and is still working, and looking well. What was the pathology of this case? What changes did our treatment produce? I will gladly attend their funerals to find out. Will I then know, or will they die like many criminals, whose death refuses to divulge their secrets?

OBSTRUCTION OF THE OESOPHAGUS IN A PUPPY—PERFORATION—ESCAPE OF LIQUID FOOD INTO THORAX.

By RALPH C. JENKS, D. V. S., Brooklyn, N. Y.

One evening in the early part of June, a gentleman brought to the office a two-months old fox terrier puppy, suffering for

the past three days with choking symptoms, efforts at coughing and gagging, with abstinence from food and water, and frequent outcries of pain. As he partook of no food, gruels, beef tea, and milk had been administered with a spoon, as also had the syrup of buckthorn. No knowledge was possessed by the owner as to the condition of his bowels. For twenty-four hours prior to consulting me, he had shown evident distress in breathing, and for this reason pneumonia was suspected, and he sought advice.

Examination of the patient revealed a very weak and fluttering heart-beat, temperature 103, undoubted hydrothorax, and great pain somewhere near the entrance to the chest. Saliva was dripping from the mouth, and the head was extended upon the neck. Lifting the little fellow by catching him at the elbows caused him to cry out with pain, or when standing he would frequently evince pain when he would bend his neck or body. He was extremely weak, staggering, and when putting weight upon a leg the lower portion (from the carpus and tarsus to the toes) would rest upon the floor.

No difficulty was found in making a diagnosis of foreign body, but its location and connections were uncertain. Differential diagnoses were made with pleurisy with effusion, pneumonia, and organic heart disease.

As death was impending and the patient suffering acutely, my advice to end his misery was readily agreed to. An immediate post-mortem revealed the presence in the thoracic portion of the œsophagus of a triangular chicken-bone, with sharp projections, one of which had penetrated through all the coats of the œsophagus and entered the thoracic cavity, through which opening all the liquids that were forced into his unwilling mouth passed, until the cavity of the thorax was two-thirds full, the heart being entirely submerged, and the lungs pumping away in this conglomerate mass. The specimen, with the bone *in situ*, was placed in a bottle of alcohol as evidence of a most peculiar accident and complication.

“REPORTS OF CASES” is a department of the REVIEW which can be made the most practical aid to veterinarians. The profession is always solicited to employ it as freely as they wish. It is singular that it is not overrun with interesting case reports. Utilize it during the dull summer months and thus help your profession, your brethren, and yourself.

EXTRACTS FROM EXCHANGES.

FRENCH REVIEW.

ACUTE HYPERTROPHY OF THE MYOCARDIUM OF GLANDEROUS NATURE [*By Mr. Berton*].—This is the case of a gelding, which, laid up on suspicion of being overworked, exhibited suddenly serious symptoms of cardiac disease: "elevation of temperature, anorexia, prostration, œdema under the sternum, abdomen and in the extremities, cyanosis of the conjunctivæ, weak pulse, cardiac beatings strong, loud and accelerated," etc. After a few days, however, manifestations of glanders became well marked, and the animal was destroyed. At the post-mortem, besides the ordinary glanderous lesions of the respiratory apparatus, it was found that the heart was at least one-third larger than ordinarily, its walls being considerably thickened. On section the myocardium is like being infiltrated, its fibres are separated by dark lines running in all directions. This condition is principally noticed in the ventricles. The author says: "If since a long time the infectious origin of many myocardites is known, cases are rare where glanders occurs under that form."—(*Receuil de Med. Vet.*)

TRIPLE GEMELLAR GESTATION WITH MONSTROSITY [*By Mr. Haus*].—A Dutch cow, five years old, was delivered of three living heifers. The accouchement was normal, and accomplished without difficulty. The first and second subjects were in the vertebro-sacral position and delivered without effort. The third was in the lumbo-sacral position, with the left anterior leg entirely engaged in the pelvis. After the third delivery, a round mass, as big as a duck's egg and covered with hairs, was thrown out of the vagina. It was an Anidian monster. The three heifers are of the same size, about the same weight, are normally formed and in good health. The delivery of the cow took place twelve days before the expected date.—(*Receuil de Med. Vet.*)

TO PREVENT INFECTION OF WOUNDS.—According to Prof. Galtier, of Lyon, "If fresh wounds, even the most superficial, such as simple abrasions, scratches, are easily infected when they come in contact with virulent substances, it is easy also to protect them and prevent infection by covering or cauterizing them with some agent, such as bichromate of potassium (in solution), phenic acid (in emulsion), ordinary tincture of iodine, perchloride of iron, nitric acid and nitrate of silver, tincture of

iodine (double strength); the first four are sufficient for superficial and the others are principally indicated for deep wounds. Those agents protect the wound against infection in preventing absorption and in acting more or less on the virus. The difficulty of success varies with the depth of the wound; altogether superficial ones become infected oftener, but they are more easily preserved. At any rate, nitric acid, nitrate of silver and double tincture of iodine, must be preferred under all circumstances as acting more thoroughly and more surely.—(*Journ. de Zoötech.*)

A CASE OF TRACHEAL DIFFORMATION (FLATTENING) IN A MULE [*By Mr. A. Pleindoux*].—Eight years of age, and of large size, this animal was a confirmed roarer. Six months previously the symptoms were very mild, but little by little they increased in severity and now he roars in walking, and it put to work or to trot, he is threatened with asphyxia. Supposing that possibly the condition was due to the lesion most ordinarily met with, viz., paralysis of the larynx, laryngotomy was decided upon and performed; but after release from the operating table and, though he had the ordinary temporary tracheotomy tube, the mule continued to roar. Taking out this tube and exploring the trachea downwards, the author found that the diameter of the organ was gradually diminishing in size. The mule, growing rapidly worse with this difficulty of respiration, was killed a few days after. At the post-mortem the trachea was found flattened from forward backwards in its lower half. The cartilages were very flexible, and, instead of overlapping each other, their extremities were separated from each other from four to five centimeters. The antero-posterior diameter was scarcely 15 millimeters, the transversal 6 centimeters. The interannular ligaments were torn and the muscular coat of the trachea, loose from the inner face of the rings, and forming folds in the cavity of the trachea, reduced its calibre.—(*Journ. de Zoötech.*)

SUDDEN DEATH BY SUBARACHNOID HÆMORRHAGE OF A STALLION DURING COPULATION, SUFFERING WITH TRICUSPID INSUFFICIENCY.—In the *Revue Vétérinaire*, Mr. Scoffié relates this case of the death of a seventeen-year-old stallion which occurred during copulation, and at the post-mortem, besides hypertrophy of the heart and disease of the tricuspid valve, a hæmorrhage was found on the superior face of the posterior part of the bulb. On dividing the dura mater, a clot was found back of the calamus scriptorius, between the visceral layer of the

arachnoid and the external face of the pia mater. In conclusion, Mr. Scoffié says : (1) Stallions ought to be carefully examined, not only in relation to the lesions and blemishes that may be transmitted, but also with the object of detecting cardiac lesions or others which may endanger their lives ; (2) Copulation must not be allowed during the process of digestion, which is specially favorable to vascular ruptures on account of the pre-existing bloody hypertension.—(*Revue Vétérinaire*.)

CLINICAL OBSERVATIONS.—Continuing a habit seldom followed by American veterinarians, Prof. Labat, of Toulouse, related these interesting practical cases in the *Revue Vétérinaire* :

(1) *Cysts of the Spermatic Cord*.—This horse had been successfully castrated and three months and a half after was suffering with a large swelling of the scrotum and inguinal region of the right side. By careful examination of the parts, condition of the cord by rectal exploration, a diagnosis of champignon was at first entertained, though the mobility of the mass, its puffy consistency, etc., might suggest another lesion—perhaps an epiplocele. At any rate, surgical interference was decided upon and the animal submitted to operation. The manipulations revealed that it was the spermatic cord which was diseased, but instead of finding the ordinary champignon, it was an ovoid mass, the size of a turkey's egg, in which the cord—soft, puffy and infiltrated—contained several cysts of various dimensions, one as big as an almond, another the size of a large marble, two others as big as peas. These cysts were lodged in the interstitial connective tissue, their membrane or envelope was thin and white, their inner surface smooth and their liquid contents citrine and clear. Recovery of the animal followed rapidly.

(2) *Chronic Inguinal Epiplocele, following Castration*.—This horse was castrated six months ago, and the wounds of the operation healed well with the exception that on the left side there remained a little fistulous tract, from which pus was oozing. A swelling of the region soon occurred, and the owner applied to the school of Toulouse for advice. The left inguinal region is occupied by an ovoid tumor, painless, not œdematous, in the centre of which is a fistula. Rectal exploration shows the superior inguinal canal dilated, not lacerated, with a thick cord running through it. This is evidently adherent to the bottom of the cicatricial tissue and the skin. Chronic inguinal hernia is diagnosticated and this is due to a portion of the great omentum. The hernia cannot be reduced and the animal is

operated upon. After careful dissection of the tissues surrounding, carefully saving the hernial sac, this was opened and the portion of the omentum exposed and found thoroughly adherent to the spermatic cord; both were removed in a mass with the ecraseur; the walls of the hernial cavity were brought closely together and a ligature of antiseptic silk applied as high as possible near the superior opening of the inguinal canal. The mass of tissue below the ligature was excised and the wound dressed with pads of oakum dipped in camphorated oil, held in place by four strong sutures. After four days these were removed and the wound left to cicatrize as one of castration. Radical recovery was complete after three weeks.

(3) *Gangrene of the Penis*.—This is a case somewhat similar to one published some years ago in the REVIEW, in which an empiric being called to castrate a stallion, found but one testicle, removed it and mistaking the penis for the other gland applied wooden clamps upon it. Gangrene set in and a long piece of mortified penis had to be amputated. The wound granulated and it was hoped that the ejection of urine might give rise to the formation of a permanent fistula, large enough to take the place of a natural urethra. But by degrees the wound began to contract and free incision had to be resorted to on two or three different occasions. The author was very anxious to perform urethrotomy and try to make a permanent opening below the ischial arch, but the owner would not consent and the horse changed hands.

CORRESPONDENCE.

BRIBE-TAKING BY VETERINARY SURGEONS.

Editors American Veterinary Review:

DEAR SIRS:—A horse dealer who has been sojourning in New York City during the past spring, where he disposed of a large number of high-class horses at private sale, was narrating his experiences the other evening in a large hotel to an audience of gentlemen, including myself, when he bitterly assailed the veterinary profession of Gotham, describing its members as “a lot of suckers.” He said that in almost every instance where one of his horses had to be examined for soundness he was compelled to fee the examiner in order to have the horse passed, and that in two instances the veterinarians had schedules of the amounts they demanded, as governed by the price of the horse. He further said that, on airing his complaint of the practice to

other dealers, he found that they accepted the situation philosophically, and always made provision in the price asked for the horse, so as to be in position to meet the demands of the surgeons.

An attempt upon my part to defend my profession by saying that the practice was not general, but confined to a very few of the lower class of the members, was met by the emphatic statement that in his experience and that of other dealers with whom he conversed, it was exceptional to find a veterinarian who would refuse the proffered bribe, and not uncommon to find men who would "brace" the dealer for it before undertaking the examination, and "raise the ante" when some unsoundness was to be passed over and a clean certificate given.

As I had recently entered the profession and been surfeited by the professors of my alma mater with lofty ideas of professional ethics and the honorable science of veterinary medicine, this fell upon my ears with pain and discouragement, and I refused to believe it, and so appeal to you, Mr. Editors, who are upon the ground and must know the methods in vogue in New York, for refutation or verification of the scandalous charges detailed above. In the city where I practice, if such disgraces do exist, it is certainly not so general as described by my informant as maintaining in the Empire City.

If you confirm the report of this dealer, I tremble for the future of veterinary medicine, for surely no honorable calling can be enduring when characterized by such disgraceful acts. It strikes me that a man guilty of such an act should be precipitately kicked out of every professional organization with which he has the effrontery to associate himself. I do not see how any honorable man can work in the interest of and for the protection of his client and then accept money from the other side. No honest man can work for two masters.

Awaiting your reply, I remain, with good wishes for the continued success of the REVIEW,

A POOR BUT HONORABLE VETERINARIAN.

Replying to the serious charges or criticism of our correspondent, the REVIEW has no hesitation in saying that he has been imposed upon by his informant—at least in so far as generalities are concerned. It is not the exception to find honorable veterinarians in New York City; but on the contrary, the great body of the profession in this city are men of integrity, honor, and dignity, far above the disreputable practices charged by the dealer who has apparently had such an unfortunate experience. Men of such character may be found in the veterinary profession, and in every other calling, including the ministry, and they permeate the profession probably equally in all large cities; but when any individual assails the veterinarians of New York City as a class with such broad charges as conveyed by our correspondent, he does so without knowledge of the facts with which he is dealing.

There are undoubtedly veterinary sharks swarming about the sale marts, working in unison with the dealers, who encourage them in the nefarious practices, because legitimate practice does not yield them the amount of returns they require or desire, and with absolutely no moral sensibility or pride, they become the moths that live upon the reputation the profession has gained through the efforts and honorable principles of its true members. They do not represent the profession any more than barnacles upon the bottoms of vessels do the materials from which the hull is made. The chief difference is that periodically the shipmaster dry-docks his vessel and scrapes off the barnacles, while the profession permits them to remain until their worthlessness causes their own decay, when they drop off and pass out of sight. That some veterinarians of the Metropolis occupying honorable positions in the profession are known to be recipients of dealers' dollars should not be discouraging to the younger members of the profession. Let them begin and pursue their careers untrammelled by such a loadstone about their necks, for once the fatal step is taken that dealer who gave the bribe has the recipient in his power, his self-respect is gone, and if a man of honor he must feel ashamed to look his brethren in the face. No veterinarian known to have received money from a horse dealer for the purpose of influencing his decision in the examination of a horse should be eligible to membership in an association of veterinary gentlemen, and any member of such an organization against whom such a charge can be sustained should be relieved of his certificate of affiliation without ceremony.

But when any man assails the profession of New York City as a body in the manner that our correspondent's informant has, we reply simply that he wilfully or ignorantly lies.

EXAMINATION OF HORSES FOR SOUNDNESS—LIABILITY FOR CONDEMNATION UPON "SUPERFICIAL" EXAMINATION.

BROOKLYN, June 11th, 1898.

Editors American Veterinary Review:

GENTLEMEN:—Your comments in the current issue of the REVIEW, on the subject submitted to you by Mr. Clarence H. Robbins, of this city, in reference to the liability or non-liability of Dr. Ackerman in a civil action, either evades the question, or you have misconstrued the point at issue. Kindly refer to the "query" on p. 198, and particularly to the quoted portions thereof, and you will find no reference to "malicious" or "prejudiced" action on the part of Dr. Ackerman, which you claim must be the basis for legal action.

As you say, the matter has gained considerable professional notoriety, the vital question at issue is,—Dr. Ackerman, in his certificate having pronounced the animal "unsound at both ends," and that upon a "superficial examination,"—therefore, *Query*: "Is not any veterinary surgeon legally liable to the consequences of certifying to the unsoundness of an animal, while admitting in that certificate that same is done upon a "superficial examination"?

This is the vital point to the profession at large.

Trusting that this will not be too late for publication in the July issue of the REVIEW, I am,

Yours truly,
L. McLEAN, M. R. C. V. S.

The comments in the June REVIEW anent the subject referred to by Dr. McLean were based upon the general pecuniary responsibility of an examiner for the contents of a certificate issued by him detailing the results of his examination of a horse for soundness, and the views there expressed are those held, we believe, by almost all men familiar with veterinary jurisprudence. Since, however, our correspondent insists that the real question involved in the original query is the apparent carelessness of the examiner in rendering a judgment of unsoundness, we renew our remarks based upon this aspect of the case. Just here we will lay aside the individuals concerned in the controversy, and discuss the question simply on the point submitted. The subject is practical, and its ventilation must prove of interest and profit to the profession. We believe that our correspondent, who is avowedly a painstaking and conscientious examiner, has condemned many a horse upon a "superficial" inspection; but we do not think he ever passed one in that manner. For instance, if an animal were submitted to him for professional opinion, and his first observation led him to believe that the horse was "shaky" in its knees; or if a lateral view revealed the presence of a curb, or that he was knuckled, or that he possessed any other defect or deformity which his experience and knowledge had taught him to reject, the animal would be condemned without putting it through the details of a minute examination. On the other hand, if a "superficial" examination failed to reveal the presence of such conditions, he is in duty bound to pursue his investigations in quest of defects of a less patent character; and, it is only after exhausting every means in his power to find evidence of ill condition, that he can conscientiously certify to his belief in the soundness of the subject. In the case in question the examiner declares in his letter to the buyer that as he stood looking at the subject he observed a weakness of the knees sufficient to cause him to consider the horse unsound "at that end." What he discovered at "the other end" to produce a similar verdict is not made plain, but he became satisfied of that fact enough to cause him to submit such an opinion in writing. Now the question arises in the case of the first objection, whether a "superficial" examination was not all that was necessary. If such a condition really existed, it strikes us that he was just as competent to observe it superficially as upon a minute examination. And the same would apply in the detection of knuckling, curb, or the presence of lameness, and many other conditions. If they are seen at the first glance no amount of careful work can secure the examiner's approval, and the horse had as well be condemned as to waste any further time upon the case, for he is rejected from the beginning. We, therefore, hold that a veterinary surgeon is justified in many cases in condemning a horse upon "superficial examination," and adhere to our contention, that the burden of proof to do injury or injustice from malice or prejudice must be against the examiner as a basis for legal action.

THE ATTITUDE OF THE PRESS TOWARD THE VETERINARY PROFESSION.

NASHVILLE, TENN., May 23, 1898.

Editors American Veterinary Review:

DEAR SIRS:—It is the function of the daily press to instruct the people in all branches of science and all forms of knowledge as well as gather and condense news for them and advance their political and social interests. Thus to particularize it is a matter approved of by all veterinarians to see the people informed on such veterinary matters as can be presented in a shape easily understood by them. The public learn thus to have more respect for them and to feel sensible of the work which the veterinary profession is constantly struggling so earnestly to accomplish. Especially is it well to frequently call the stock-owners' and

raisers' attention to the sanitary and hygienic rules which should govern every stable and stock farm.

Indeed, it is more and more the endeavor of veterinary medicine to prevent disease by preventing the violation of nature's laws, and when the press lends its great influence to the more silent but earnest exhortation of the veterinarian, as he goes from barn to barn on his mission of mercy, the feeling implanted would not be that of meddling, but would impress the reader that assistance and comfort were being given his animals.

But to our most sincere regret this is not always the attitude of the press towards the profession. It is by no means a rare thing to see a paper heaping ridicule on ridicule on the whole profession, either because of the unfriendly feelings of a few or because of some personal prejudice of the editor. Besides the injustice to the qualified veterinarian, utterances in which "quack," "fakir" and similar terms figure largely, we think that much injury is done to the public.

There are many people, principally among the poorer classes, who are at best quite sceptical as to the merits of veterinary medicine, and if their scepticism is strengthened by editorials and squibs derogatory to the veterinarian it may readily occur that the practitioner will find himself helpless because of the want of confidence of his client and the half-hearted way in which his instructions are carried out by the attendants. Sometimes these strictures are more due to thoughtless writing than to a desire to harm or impede the progress of veterinary science. But let the editor imagine himself describing or criticising his own veterinary surgeon and perhaps he would alter his words in such a way that they would leave a milder and more exalted impression for the veterinarian. For those who do really and truly mean to do harm we can only say that much harm is done to the public as well.

When an individual commits a wrongful or unprofessional act or a crime, scourge and scorn him as he deserves, but not the whole profession—the good and bad alike.

In this connection we might mention a frequent custom of the press which often produces wrong impressions on the public and leads to injurious consequences—the printing of the treatment of diseases. No two cases are alike in every particular, thus though the plan of remedy recommended may prove beneficial in some cases it may result in much harm in others. Teach the people the laws of health, urge them to obey the laws of veterinary hygiene, persuade them that certain diseases

are transmitted by contagion and infection, and that such patients must be isolated ; in short, teach them to obey the Board of Health and other sanitary authority. But do not attempt to prejudice them against the veterinarians that may in the course of events be called to treat their domestic animals.

Very truly,

GEORGE R. WHITE, D. V. S.

BIBLIOGRAPHY.

PRACTICE OF SURGICAL THERAPEUTY OF DOMESTIC ANIMALS. By P. J. Cadiot and J. Almy. (*Traité de Thérapeutique Chirurgicale des Animaux Domestiques.*) Vol. II. Published by Asselin and Houzeau.

This completes the work undertaken by the authors. The first volume was issued a little over two years ago, and treated of general surgery, of diseases common to all tissues, and to the extremities. The second volume has for its object the diseases of regions, and is divided into sections, subdivided into chapters. The first section, treating of affections of the head, includes those of the cranium and its contents ; of the horns, vertebral column and spinal cord, the eye and its annexes, the ear, the Eustachian tubes and guttural pouches ; diseases of the nose, nasal cavities and tissues ; those of the jaws, mouth, pharynx and salivary glands. Among all these, the chapters on dental cysts, traumatism of the eye, tumors of the nasal cavity ; of the tissues and of the pharynx, with the special interference that they demand, deserve attention. The second section treats of the traumatic and inflammatory affections of the neck, of the diseases of the thyroid gland, of the larynx, trachea, and œsophagus. In the third section are found the diseases of the withers, back and loins in one chapter ; then follow the surgical affections of the chest. This last forms one of the most interesting of the work. The fourth section treats of the affections of the abdomen and of its contents. The inflammatory and traumatic lesions, hernias, diseases of the anus and rectum, of the urinary apparatus, of the genital organs of males and females. In this section the chapter on hernias, that of cryptorchidy, on ovariectomy, deserve special attention. The fifth section is short. It contains only one chapter, in which traumatism, tumors, parasitism, aneurism, etc., are treated. Amputation, caudal myotomy and neurotomy are also presented to the reader. The sixth section is devoted to the foot, diseases of that part of the extremity in solipeds, in bovines, sheep, dogs, pigs, cats, and even birds form a number of interesting chapters, which will be read with much interest.

This concise mention of the work is insufficient to give an idea of the value of its contents. But a careful perusal of its 900 pages, the complete description of the diseases, the simplicity of the processes of operations, the positiveness of the elements of diagnosis and of the therapeutical indications, all will point out the value of the work as one of the best of its kind in veterinary literature. Like that of Lanzillotti-Buonsanti, to whom we have alluded in a preceding issue of the REVIEW, the bibliographical information presented by the authors is most complete and shows the amount of research this second volume has imposed on Prof. Cadiot and his worthy assistant, Mr. Almy.

In this second volume there are no less than 419 plates inserted in the text. These are of great value, and must have involved the publishers in heavy expense. The make-up, the printing, all, in fact, is worthy of the good old French house, from which most all of the valuable veterinary works are issued. There is no doubt that the completion of the work constitutes a valuable acquisition, up to date, to veterinary surgery and that it will meet at the hands of the profession the credit it deserves.

SOCIETY MEETINGS.

UNITED STATES V. M. ASSOCIATION.

At the hour of going to press with the July REVIEW the programme of the annual meeting, which takes place in Omaha, Neb., on Sept. 6, 7 and 8, had developed very much more completely than at a similar date last year.

Meat Inspection will be discussed under the following headings: "Reasons for Meat Inspection," by Dr. C. A. Cary; "Methods of Educating the Public as to the Importance of Meat Inspection," by Dr. W. Horace Hoskins; "The Necessity of Consolidation of Municipal Slaughter-houses into Large Abattoirs under Municipal Control," by Dr. Leonard Pearson; "Slaughter-house Inspection," by Dr. Thomas J. Turner; "Retail Market Inspection," by Dr. Charles W. Heitzman.

A considerable number of specimens illustrating diseases in food animals has already been secured and members interested in this subject will doubtless have an opportunity to see and examine a larger variety of pathological tissues and abnormal conditions of animal flesh than has ever been collected before in this country. This feature of our meeting will be worth the

most of the trip to Omaha to members interested in this subject. If the resident secretary and other members in each State and Territory would present the importance of this discussion on Meat Inspection to the State Sanitary Boards (medical and veterinary) of their respective States, the Boards might be led to send representatives to take part in the discussion.

Papers are announced as follows :

"A Study of the Healing Process in Ovaryectomy in Cows," by Dr. M. H. Reynolds.

"Practical Points in Country Practice," by Dr. S. S. Whitbeck, Decorah, Iowa.

"Diseases of Dogs," by Dr. H. D. Gill.

"The Control of Hog Cholera, especially in Minnesota," by Dr. M. H. Reynolds.

"Acute Indigestion in the Horse," by Dr. Roscoe R. Bell.

"A Radical Operation for the Cure of Contracted Hoof," by Dr. C. C. Lyford.

Other papers (titles not announced) will be presented by Drs. James Law, Tait S. Butler, C. A. Cary, A. J. Anderson, and others.

Clinical Demonstrations have been promised of

"Caudal Myotomy," by Dr. H. D. Gill.

"Extraction of Teeth and other Dental Operations," by Dr. L. A. Merillat.

"Ovaryectomy in the Mare and other Animals," by Dr. W. L. Williams.

"Casting and Confining Animals," by Dr. T. S. Butler.

The Entertainment Programme, while not complete, promises a round of pleasant social functions that will occupy almost every hour that is not spent upon the regular work of the convention. From the efficient Chairman of the Committee, Dr. A. T. Peters, of Lincoln, Neb., we have received the following outline of their arrangements :

"The Millard Hotel has been secured for headquarters of the association ; also their large assembly hall where the meetings will be held. On Monday evening we have an entertainment for the gentlemen from abroad. On Tuesday morning, after the President's address, tally-hos will take the ladies through the city and to the Exposition grounds. On the evening of September 6th there will be a reception tendered to the officers of the U. S. V. M. A. and their friends and visiting officers. There will be music and light refreshments in the parlors of the Millard Hotel. On Wednesday morning the ladies of the Nebraska

Association will take the visiting ladies through the principal stores of the city. In the afternoon there will be trolley cars to take them through the city, South Omaha, Council Bluffs. In the evening of September 7 there will either be a theatre party or some suitable entertainment, the managers of the theatre not knowing at present what play will be there. On Thursday the association will adjourn, if possible, about three o'clock in the afternoon and the entire association will take cars to the Exposition grounds. We have arranged for a large building in which to hold our clinics. Dr. G. R. Young, of Omaha, has been made chairman by the local committee and has this in his charge. Every member of the Nebraska Association has been notified to secure interesting specimens for operation, and the clinic is only a block away from the hotel, and it is contemplated holding a clinic every morning from 8 to 9.30, before the general session opens. Another feature of interest is that members attending the association will not have to leave the building for noon-day lunch as that has been provided for. This will greatly facilitate the work of the association. Any suggestions which you give will be gratefully received. We have a Bureau of Information, of which Dr. Ramacciotti, of Omaha, is chairman. It will be located on the ground floor of the hotel, and will give all necessary information and make announcements. It will give all information in regard to the Exposition, city, State, and regarding time tables of the railroads. There will also be a reception committee, consisting of Dr. Everett and myself. I think we are getting things in good running order, and I hope you can help us bring out a large delegation."

Railroad Fares.—The Western Passenger Association announces a one-and-one-third fare for the round trip from all points within its territory. and from the eastern terminal points as follows : Chicago, \$20 ; St. Louis, \$17 ; and St. Paul, \$15.75. The Central Passenger Association makes an open rate of 80 per cent. of the first class round trip fare, from the territory east of the Mississippi River, north of the Ohio River, and as far east as Buffalo and Pittsburg. From the last points named east to the Hudson River, the territory of the Trunk Line Association, a rate of one and one-third fare on the certificate plan has been granted.

It is expected that by a concerted effort all the Eastern members will form a party, possibly sufficient to fill two coaches, and journey pleasantly together to Omaha.

CHICAGO VETERINARY SOCIETY.

Meeting called to order June 9th by Dr. Walker, President, who stated that he had been unable to see the directors of the Chicago St. Andrew's Society in regard to the rental of the clubroom we are now occupying. He promised to see them before the October meeting.

The report of the Treasurer showed \$14.03 in the treasury. No report from the Secretary.

The regular programme was then taken up by

DR. GRIINER'S PAPER.

Mr. President and Gentlemen :

My subject for this evening is an extensive one and I am afraid that I am not able to give to each the attention it should have, but if I can only arouse a lively discussion on the different diseases, among my fellow-members, I shall be very grateful. The essay is confined to the foot, and includes low ringbone, side-bones, coronitis, calks, quarter-cracks, toe-cracks, naviculararthritis, keratoma, contraction, laminitis, corns, dropped sole, thrush, seedy toe, canker and quittor.

Low ringbone is a disease affecting the distal interphalangeal articulation (or coffin joint); it appears as an exostosis generally on the anterior of the limb at coronet, but may appear somewhat laterally and generally involves the whole joint. Whether same causes lameness or not, I would consider the animal unsound. We may find some enlargement on the os corona, not involving the joint, also called false ringbone; this I would not consider an unsoundness.

Side-bones are ossifications of the lateral cartilages when they become hard and unyielding and found on the postero-lateral aspect of the foot. There is generally very little lameness present. Would consider it an unsoundness.

Coronitis or villitis, inflammation of the coronary band, not very often met with, recognized by heat, pain and fullness of coronary band, is an unsoundness.

Calks, or treads on the coronet, received from the animal stepping on himself with shoe on opposite foot; the injury may be slight or very grave; unsoundness would therefore depend upon injury to the part.

Quarter-cracks are splits or fissures on the hoof occurring at the quarter and mostly found in front feet; they may be superficial or deep. When deep there is a complete fracture of the crust extending into the sensitive lamina, in which case I

would consider it an unsoundness ; when same is superficial, however, the horse may be considered sound.

Toe-cracks may be considered under the same head as quarter-cracks, the difference being the cracks occur at the toe. If same extend through the full length of the hoof, I would call it an unsoundness.

Naviculararthritis is a disease of the navicular joint. Opinions differ some in regard to the point of origin, some place it in the perforans tendon, others on the gliding surface of the os navicular, and still others say positively it originates in the synovial bursæ, but that matters but little and if the examining veterinarian's diagnosis is correct he need not hesitate in pronouncing the animal unsound.

Keratoma, also termed keratopholocene, develops generally on the inner and anterior extremity of the wall of the toe at the white line and may extend as high as the coronet, leaving a marked depression on the pedal bone. This is an unsoundness.

Contraction is a name applied when hoofs become narrow at the heels, and is often associated with thrush and naviculararthritis. This is in my opinion an unsoundness.

Seedy toe may be termed localized laminitis. The wall becomes detached from the sensitive lamina, leaving a cavity, where we find a mealy deposit. It may appear at the toe or the quarter. For slow work such a horse may be all right, but I would be inclined to pronounce him unsound.

Corns are located at the bars or heels of the foot. If a bruise it is termed dry corn, if suppurating a suppurative corn, involving the sensitive lamina, mostly seen in the front feet. A suppurative corn is an unsoundness.

Thrush is a disease confined to the commissure of the frog, mostly seen in hind feet. If seen in front feet look for some other disease. If front feet are affected I consider it an unsoundness, if hind feet, not.

Laminitis, also known as founder, is inflammation of the sensitive lamina ; whether the disease is acute or chronic, animal should be pronounced unsound.

Dropped sole generally occurring from the effects of laminitis, is a condition where the sole descends and part of the os pedis rotates downwards. Such an animal may perform slow work, but is unsound.

Canker is a morbid growth affecting the sensitive sole, frog and walls. It is a chronic proliferation of the papillæ of the

rete, producing a bad swelling, greasy yellowish-gray fluid and is an unsoundness.

Quittors are fistulous tracts, usually opening at the coronet. We also have cartilaginous quittors affecting the lateral cartilages sometimes the subcoronary tissue only is involved, but there may be several fistulous tracts all involving sensitive laminae. This is in my opinion an unsoundness.

DISCUSSION.

Dr. Quitman : In speaking about corns, the essayist remarked that a suppurating corn was decidedly unsound, but avoided corns in general. Does he consider a horse that seems to have corns but does not go lame as unsound?

Dr. Griiner : I mentioned dry corns. I did not state whether they are sound or not. If removable the horse may be called sound. I would not consider nor pass any one as sound on account of it being hard to keep shoes on horses with corns.

Dr. Baker : I would like to know as to whether in the absence of any soreness a veterinarian is justified with the view of simply looking for them to pare away the hoof in the seat of corn, assuming that there were no indications creating suspicion that there were any. I know some practitioners do make it a practice to pare away the hoof with this object in every case. If he finds a discoloration he condemns the horse.

Dr. Quitman : I would say, as far as I am concerned, in examining a horse for soundness, I invariably examine the horse for corns with a knife, paring the inner quarter and in city horses also the outer bar and sole. In my opinion, however, if a man is going to condemn a horse for corns he will have to condemn about three-fourths of the horses. Even country horses in the city will develop corns caused by the hardness of the pavement or from the difference in the stabling. It depends upon the severity of the corn whether they should be condemned. I invariably, however, examine every foot for self-protection if for nothing else.

Dr. Griiner : I would like to ask Dr. Quitman whether he takes the shoes off in making his examination—that is, if he has to examine a horse with shoes on?

Dr. Quitman : It depends upon the web and style of the shoe, also on general conditions. I often have the front shoes removed. If it does nothing else it impresses the client that I make a very careful examination. I make it a rule to point out every little blemish to the owner for my own safety. If the corn is of a deep purple color and extends deeply between the

bar and the wall I reject the horse. If, however, the horse does not show any lameness or tenderness I would as a rule pass him although he has a corn. It depends mainly upon the discoloration, etc.

Dr. Griener: Horses shod with rolling-motion or rubber pads are as a rule unsound, and I would recommend particular care in examining such horses.

Dr. Quitman: Does the essayist consider a horse unsound having a Whitman and Barnes rubber shoe on?

Dr. Griener: Not necessarily. I would examine him carefully, having his shoes taken off.

Dr. Robertson: I must confess that I have not been as particular heretofore in examining the feet for corns. I rely as a rule on the external conformation of the wall and appearance of the foot in general. We are not supposed, in my opinion, to pare into the sole of the foot except we have just cause for suspicion. The same as we are not supposed to go into a bowel that may be weakened from some digestive trouble. External appearances will caution an experienced veterinarian for closer examination. Then he can use his own judgment as to the horse being sound or unsound.

Dr. Campbell: Would you reject a horse with a slight corn?

Dr. Robertson: That depends upon the conformation of the foot.

Dr. Hughes: Regarding the subject of corns, something like the subject of ringbone and many other conditions touched upon, we have to use a very considerable lot of judgment in passing it for soundness or unsoundness. In my opinion corns are not produced by the shoe, but by the method of the shoeing. We hear of horses from the country that have never been shod having corns. However, this is an unreasonable statement. When a man runs across such a corn, it is merely an accidental bruise, or staining of a healthy quarter and should be considered in my opinion as sound. Any corn that looks like a long standing one should be pronounced as unsound. I would like to have the question of ringbone discussed to-night. In my opinion the subject of ringbone in examination of horses for soundness will cause more annoyance than anything else. For instance, a heavy draught horse five years old that is perfectly sound as far as his movements are concerned, when we come to examine his os corona we find on the posterior lateral aspect a marked angularity. The anterior as well as the internal lateral aspects are

smooth. Is that horse sound? I hold that a man who finds a marked angularity at that point is perfectly justified in condemning the animal, as he will have a ringbone in the future. Any one can determine a pronounced ringbone, but I would like to hear the opinion of the members, as undoubtedly they have come across such irregularities.

Dr. Baker: I think it is unjust that a horse with rough pasterns should be condemned. My experience has taught me that they are no more liable to develop ringbones than others, and therefore I think it is unjust to ourselves and to commerce to condemn a horse with rough pasterns, provided there is no thickening or other cause for ringbone. In regard to examination for corns, where there is no suspicion, I do not pare away the hoof nor do I condemn a horse with slight discoloration without any lameness.

Dr. Hughes: Regarding Dr. Baker's statement of angularity. I never condemn a horse that is all angular, but when I find a horse that has pronounced roundness of the joints and angular pasterns I say there is something wrong and I reject the horse.

Dr. Merillat: My experience regarding rough jointed horses and rough pasterns is that you will usually find a horse that has rough pasterns is not rough jointed and I fully believe that such a condition should be looked at with suspicion. I have examined more than 800 cavalry horses this last week and condemned as many as forty with these enlargements, as I considered them as absolutely unsound.

Dr. Robertson: What is your opinion as to soundness of a horse with one foot smaller than the other?

Dr. Hughes: I think such a horse should be in every case rejected, as he will sooner or later, especially in the city, go lame, and invariably on the smaller foot.

The following members have severed their connection with the society: Drs. E. Jentzsch, James Flemming, J. A. Bovett, Jr., Harry J. Stewart, D. W. McKillip, A. R. Wake, J. McBirney, R. H. Tracy, L. Clark, W. J. Stewart, C. H. Zink.

L. CAMPBELL, D. V. S., *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

In the absence of the President and Vice-President, meeting was called to order June 1, at 8.45 P. M., by the Secretary.

On motion, the Chairman of the Board of Censors was voted to the chair. The following members responded to roll-call: Drs. Amling, C. C. Cattanach, J. S. Cattanach, Ellis, Gill, Lamkin, Lellman, Machan, MacKellar, O'Shea and Ryder. The minutes of the previous meeting were read and approved.

Report of Board of Censors.—Dr. Gill, Chairman, reported as follows: Whereas, at the March meeting, Dr. Huidekoper, on the impulse of the moment, unintentionally slighted Dr. Bell, by failing to recognize Dr. Ackerman in the debate, as per programme, arranged by Dr. Bell, as Chairman of the Ways and Means Committee, and Dr. Huidekoper, having recognized his error, and having made an apology to Dr. Bell, it is resolved, that the Secretary be instructed to ask Dr. Bell to withdraw his resignation as Chairman of the Ways and Means Committee. Moved and seconded that the report be accepted. Carried.

Reading of Papers.—Dr. Lellman then read a paper entitled, "Multiple Sclerosis of the Brain and Spinal Cord of a Dog," as follows:

A very interesting case of paralysis in a dog was observed by me last year. When I discuss this case it is done with some reluctance, as it was impossible for me to get the animal for an autopsy, in order to prove that my diagnosis was correct. Nevertheless there is no doubt in my mind.

In September of last year I was called to examine a dog, which according to the owner's history had been paralyzed gradually during the past six months. When taking the history of the case as thoroughly as possible, I found out the following facts: The first symptoms which the owner of the animal noticed, were an intense twitching of the muscles of the extremities when the animal got up to walk or when it became excited. During rest these symptoms would cease entirely. By and by, the owner said, she noticed the appearance of weakness in the hind legs, staggering, till finally the animal became entirely paralyzed on its hind legs; the fore legs also seemed to become weaker and not to be fully able to perform their normal function, the right front extremity more so. The dog, which was trained well and used to know a good many tricks, seemed to have forgotten all of them entirely, but one. The owner also told me that, according to her opinion, the dog had very poor eyesight. The appetite had been fair. When asking the owner whether she noticed any irregularities in passing the fæces and urine, she told me that she never noticed any.

A thorough examination was made, the results being as follows: Male pug dog, about six years old, in abnormal fat condition, the hair being of dull lustre, the visible mucous membranes appear to be anæmic; pulse is small, irregular, beating about 100 times a minute. At the two brachial arteries the pulse appears not synchronous. Temperature per rectum is 102° F.

The heart shock is weak and can hardly be felt on the left side of the thorax. Percussion of the heart region shows an increased zone of dullness. While auscultating the heart, I find the first sound normal, while the second one is hardly to be distinguished; it appears to be combined with a by-sound almost synchronous with the diastole of the heart. This abnormal by-sound is of a somewhat buzzing character. According to my examination of the heart I diagnose insufficiency of the semilunar valves of the aorta and also a possible (dilation) aneurism. There was also most probably a dilation of the left ventricle. Percussion of the thoracic walls shows, apart from the increased dullness of the heart region, nothing abnormal. Auscultation of the lungs reveals dry bronchial râles. Examination of the digestive apparatus reveals nothing very important, except a catarrh of the intestinal tract. Disturbances in the function of the rectum are not present. Examination of the urogenital organs proves slight albuminuria and quite an enlargement of the prostatic gland.

The psyche of the animal is not free, it appears distinctly depressed, somewhat apathetic.

A thorough examination of the eyes shows considerable dilation of the pupils, partial atrophy of the optic nerves, some small calcifications within the lens; these, however, were not sufficient to cause any substantial disturbance of the eyesight.

The hind extremities are almost perfectly paralyzed. When trying to move the dog drags the extremities; the animal is unable to make any co-ordinate movements with the same. The fore extremities show commencing paretic symptoms, the right one more so.

However, there is not substantial atrophy of any muscles of the extremities and the trunk. Almost puzzling is the considerable atrophy of both temporal muscles. Every time the animal tries to move a considerable tremor of the muscles of the extremities sets in; during rest, however, it disappears altogether. While testing the sensibility of the nerves, I can hardly detect anything abnormal. On the other hand, the re-

flex of the tendons and periosteum appears distinctly increased. The hind extremities show considerably increased patellar reflex and also intense clonus of the foot (reflex of the Achillean tendon). The muscles of the posterior extremities are in a kind of tonic state. The gait of the hind extremities is paretic-spastic. The reflex of the cutis appears to be normal. Trophic lesions are not present. Disturbances in the function of the rectum and bladder are also absent. By request some milk was given to the dog; I now notice that there were beginning disturbances in swallowing. The lower lip appears somewhat flabby and is hanging down. The voice of the dog is also changed. This was told me from the owner before. Those last mentioned symptoms speak clearly for pathological alterations in the medulla, while atrophy of the optic nerves is due to cerebral alterations. The paraplegia of the posterior extremities I consider due to chronic alterations within the lateral and anterior tracts of the spinal cord.

It is easily understood, that the clinical symptoms of multiple sclerosis of the brain and spinal cord can be very variable according to the localization of those sclerotic alterations. In this case, according to the clinical symptoms, I localized the sclerotic alterations principally within the occipital lobes of the hemispheres, within the medulla oblongata, pons Varoli, and within the spinal cord from the thoracic to the lumbar region. I base my diagnosis upon the following facts:

1. Upon the slow progressive paralysis, any new formation (tumor) would have been of a quicker course and would have revealed other clinical symptoms besides.

2. Upon the condition of the whole system of the dog; upon the clinical examination of the heart, which proved to me alteration of the ascendant aorta, principally insufficiency and most probably aneurism—obesity of the heart. These reasons are strengthened by the *modus vivendi* of the animal—that is, absolutely wrong diet and lack of exercise.

The sclerosis I consider due to alterations of very fine blood vessels of the central nervous system, perhaps due to arterio-sclerosis or fatty degeneration of the muscular coat. Those arterio-sclerotic alterations are very often followed by thromboses and embolisms.

As the prognosis was very bad, I advised the owner to destroy the dog, which was done. It was, however, impossible for me to obtain the dog for an autopsy, as the owner did not want to have him cut up.

Moved and seconded, that a vote of thanks be extended to the essayist. Carried.

Reports of Other Committees.—Ways and Means Committee : Dr. Ryder, Chairman *pro tem*, stated that he thought it was the function of this committee to attend to any such arrangements as were to be made for the reception of the Veterinary Medical Society of the State in September.

Judiciary Committee : Dr. O'Shea reported that this committee had received several reports of illegal practitioners ; but so far were unable to secure specific evidence against the parties accused ; and until they could do so, the committee deemed it unwise to take any action in the matter, whereby the association would be laid liable. Moved and seconded, that the report be accepted. Carried.

A communication to the association was read by the Secretary as follows :

Dr. R. W. Ellis, Secretary Veterinary Medical Association of New York County, New York City :

SIR :—I have the honor to submit my resignation to the Veterinary Medical Association of New York County.

Will you please present to the members my thanks for their courtesy and my hopes for their well-being, and the success of the association.

Very faithfully yours,

RUSH S. HUIDEKOPER.

Lieut.-Colonel and Chief Surgeon, care War Department, Washington, D. C.

Moved and seconded, that the matter be referred to the Board of Censors. Carried.

Moved and seconded, that a recess of ten minutes be taken while the Board could take action on Dr. Huidekoper's resignation. Carried. The Board of Censors subsequently offered the following report : " We recommend that the resignation of Dr. Huidekoper be accepted, and that the Secretary be authorized to notify Dr. Huidekoper of the same, expressing the association's well wishes for him in his new field of labor."

ROBERT W. ELLIS, D. V. S., *Secretary.*

MISSOURI VALLEY VETERINARY ASSOCIATION.

The fourth annual meeting was held in Kansas City on the evening of June 8th, 1898.

Meeting called to order by Vice-President R. C. Moore.

Roll-call responded to by B. F. Kaupp, L. D. Ryan, S. Stewart, R. C. Moore, W. A. Heck. Visiting veterinarians : Drs. S. E. Bennett, J. C. Milnes, J. S. Buckley, F. C. McCurdy, H. H. George, James Otterman, P. C. Kershner, of Kansas City, Mo., and Dr. A. B. Wilmoth, Chillicothe, Mo.

The Board of Censors reported six eligible applicants and recommended their election to membership in the Society. According to motion, the Secretary cast the ballot of the Society for the names of S. E. Bennett, J. C. Milnes, of Kansas City, W. N. D. Bird, of Arkansas City, James Kelly, H. M. Burgess and Harry V. Good, of St. Joseph, Mo., as members.

The committee on the Anti-vivisection bill was carried over.

The annual report of the Secretary and Treasurer was read and ordered placed on file. It consisted largely of data from the records of the association from its beginning to present meeting. It was shown that there were thirty-one regular and six honorary members. The association had held sixteen meetings with an average attendance of ten regular members. Sixty-four papers had been read, an average of four papers each meeting. Tables were compiled showing the attendance of each member, the contributions furnished and his financial standing with the association, and the conclusions were that as a rule the members who supported the society by their attendance were the ones who provided the papers, contributed the discussions and paid the bills. Eight dollars and ninety-five cents were reported in the treasury.

A great number of communications were read from members and others who were unable to attend the meeting.

A telegram from Dr. Verschelden announced his detention at the last minute and rendered it impossible for him to attend the meeting.

The election of officers for the ensuing year resulted as follows: S. E. Bennett, President; R. C. Moore, First Vice-President; J. C. Milnes, Second Vice-President; W. A. Heck, Secretary and Treasurer; J. C. Milnes, S. Stewart, B. F. Kaupp, J. H. Cock, L. D. Ryan, Board of Censors.

Dr. Ryan read a paper on "Tetanus," which brought out a very great amount of discussion.

Dr. Moore read a paper on "Methods of Generating and Administering Steam to Horses in Indicated Affections."

The lateness of the hour prevented a discussion of this paper, and Dr. Stewart moved a vote of thanks to the essayists, which was carried. Adjourned. W. A. HECK, *Sec'y and Treas.*

OHIO STATE VETERINARY ASSOCIATION.

The semi-annual meeting of this association will be held in Toledo on Monday and Tuesday, July 11 and 12. As the

Toledo veterinarians are well known for their hospitality, a jolly good time is being arranged for. A carriage ride about the city or a good lake ride, an evening's entertainment at the Euclid Park Theatre, and a banquet. All graduate veterinarians are invited, and are especially invoked to bring their wives or their sweethearts with them.

W. H. GRIBBLE, D. V. S., *Secretary*.

NEWS AND ITEMS.

"CANINE OTORRHŒA" will be the title of the next article from the pen of Dr. Frank H. Miller, for the REVIEW.

DR. N. S. MAYO, of Storrs, Conn., expects to attend the Omaha meeting of the U. S. V. M. A.

DR. L. A. MERILLAT, of Chicago, examined 800 cavalry horses in one week for the Government.

DR. W. W. JOHNSON has recently been added to the inspection force at St. Joseph, Mo.

DR. J. H. MCLEVEY, Warrensburg, Mo., spent several weeks among friends and relatives in Canada this spring.

DR. H. M. BURGESS, of Boston, is in the service of the Bureau of Animal Industry at St. Joseph, Mo.

VETERINARIAN JOHN T. LEE, of Tacoma, Washington, is President of the State Board of Health.

PROF. JAMES M. WRIGHT, of the McKillip Veterinary College, Chicago, has been appointed comparative pathologist to the Chicago Academy of Science.

MR. J. PRESTON HOSKINS, brother of our esteemed colleague, Dr. W. Horace Hoskins, has recently been elected assistant professor of German at Princeton College.

GALTEE MORE, the Irish thoroughbred stallion, winner of last year's English Derby, was recently sold to the Russian government for \$100,000.

QUITE a number of the horses bought by the government and taken to Southern camps have died of acclimation fever and complications.

THREE HUNDRED AND TWENTY HORSES were purchased in one day in Chicago by the government inspectors for army service.

THE VETERINARIANS OF THE WEST are reporting an im-

provement in their business, due to the appreciation in horses and other live stock.

DR. W. N. D. BIRD, of the Bureau Animal Industry, at Arkansas City, Kansas, has been granted a short furlough. The doctor has been to his old home in Pennsylvania, and reports to have enjoyed his vacation immensely.

DR. J. P. TURNER, formerly veterinary surgeon, United States Army, has relinquished that position, and entered the service of the Bureau of Animal Industry, being assigned to duty as a meat inspector at St. Louis, Mo.

PERCY K. NICHOLS, D. V. S., of Port Richmond, Staten Island, N. Y., has been appointed veterinarian for the Borough of Richmond, New York City, his duties including the application of the tuberculin test to all cattle on the island.

DR. THOMAS JACKSON TURNER, formerly State Veterinarian of Missouri, now connected with the Bureau of Animal Industry, was married June 22d to Miss Ella Bates, of Kansas City, Mo. They will be at home in Indianapolis, Ind., after July 15.

STRIKES THE NAIL SQUARELY ON THE HEAD.—“ . . . I will also write all our members in reference to the REVIEW, for we do not do our duty by such a magazine, which every veterinarian should have at hand.”—(*Secretary Leading Western Association.*)

THE May issue of the *Journal of Comparative Medicine* was devoted largely to affairs veterinary in New York State, page after page being devoted to pleasant personalities of various members of the profession in that Commonwealth. The majority of the items bore the earmarks of Editor Gill.

DR. WILLIAM HENRY KELLY, of Albany, N. Y., Secretary of the State Board of Veterinary Examiners, and the very efficient Legislative Committeeman of the State Society, deserted the ranks of bachelordom the latter part of April and married Miss Sparrow, of the same city. We wish him every pleasure that can come to the charmed sphere of the benedict veterinarian.

NO ADVANCE IN SPRATT'S FOODS.—The advance in wheat, and consequently flour, have seriously affected all industries making use of breadstuffs. Most of them have advanced their price lists. Spratts Patent have not advanced the price of their dog cakes and other foods. They had made favorable purchases of flour for future delivery, and though they have, of

course, felt the high prices to a certain extent, they have resolved not to make their customers suffer for it as long as they can hold out.

A PROGRESSIVE VETERINARIAN.—Dr. S. R. Howard can now boast of almost as many titles as the Prince of Wales. It is now proper, when addressing a letter to him, to put on the following: "S. R. Howard, V. S., M. B. H., M. C., H. O." That his friends may know what all this means, we will furnish the following key to his titles: V. S., Veterinary Surgeon; M. B. H., Member of the Board of Health; M. C., Member of Council; H. O., Health Officer. He was appointed a member of the Board of Health by Mayor Wilkins, and the Board at a recent meeting elected him to be Health Officer in the place of Dr. Hoyt, M. D.—(*Hillsboro Gazette, Hillsboro, O., June 3.*)

SALTPETRE POISONING.—*To the Breeder's Gazette.*—The subjoined news note, taken from the first issue of the *North British Agriculturist* of Edinburgh, Scotland, is of interest in connection with the article headed "Deadly Cornstalks" in last week's issue: "Mr. George Lethardy, farmer, Millbank, Lockerbie, has lost a couple of Ayrshire cows by an overdose of saltpeter. Mr. Lethardy had ordered a quantity of salts from a grocer in Lockerbie, and under the belief that he had received what was ordered administered a dose of one pound to each of the cows. Shortly afterward they showed symptoms of suffering and died. Mr. Lethardy being uncertain as to the cause of death had a quantity of the physic submitted to a veterinary surgeon and a chemist, who had no difficulty in pronouncing it to be saltpeter." As it has been found that eight ounces of saltpeter (one half pound) are sufficient to produce fatal results it can be readily understood that where saltpeter forms 25 per cent. in weight of fodder badly affected by the salt, cattle eating such fodder must consume a much larger amount than the one noted above.

A. S. ALEXANDER, V. S., Cook Co., Ill.

COMPETENT VETERINARIANS FOR THE ARMY.—There is a movement afoot to have the laws governing the enlistment of veterinary surgeons in the army amended so as to bring into the service highly-educated men. At present it is impossible for a veterinary surgeon to obtain a rank higher than color sergeant. The law was made years ago when a scientific education was not considered essential to qualify a man as "horse doctor." The veterinary associations have sent memorials here directing attention to the necessity for getting thoroughly competent

veterinary surgeons in the army, and suggesting that when inducements are offered qualified graduates will present themselves. It is probable that not half a dozen of the veterinary surgeons in the army to-day can correctly state the rations a horse should have to prepare him for certain work. In the British army the conditions are different. There the veterinarians are given ranks that induce competent men to enter the service. Col. Fleming of the British army, a full colonel and a C. B., is a veterinary surgeon. The necessity of having competent veterinarians in the United States' service at this time is emphasized by the danger of epidemics among the horses which are obtained from all parts of the United States and intended for service in Cuba. While it is true the purchasing agents can tell whether a horse is well or sick they are not qualified as a veterinary surgeon would be to discover weaknesses and faults which will be developed by a little service in the field. The day of the "horse doctor" has passed, and that fact should be recognized by army regulations as it is elsewhere. What the army badly needs is a corps of veterinary surgeons, men who have given as painstaking care to educate themselves in their professions as doctors of medicine do in theirs, and they can only be induced to enter the army by giving them a chance to get a commission.—(*Breeder's Gazette*, May 18.)

CHICAGO VETERINARY COLLEGE COMMENCEMENT.—The fifteenth session of the Chicago Veterinary College terminated with appropriate exercises on March 23d at two o'clock in the college auditorium. The degree of Doctor of Comparative Medicine was conferred on the following gentlemen: Geo. E. Totten, Bement, Ill.; O. O. Wolf, Ottawa, Kas.; Wm. A. Withers, New Orleans, La.; C. G. Warner, Aurora, Ill.; Jas. M. O'Reilley, Merrill, Wis.; Jas. L. Kling, McGrawsville, Ind.; D. A. Piatt, Lexington, Ky. The trustees' gold medal for highest general average in final examinations was awarded to Dr. G. E. Totten. The prize in theory and practice was awarded to Dr. O. O. Wolf. The prize in anatomy not having been won by a senior was carried over to next year. The class valedictory was delivered by Dr. O. O. Wolf, and the doctorate by Prof. A. H. Baker. The address of the professor was replete with good advice to the young doctors, giving them some valuable hints as to how to successfully conduct a practice, how to advantageously give expert testimony in court, and dwelt at length on the necessity of sobriety and industry in order to maintain a respectable position in society, to read the profes-

sional journals, join their local, State and national associations, thereby giving themselves a chance to profit by the investigations, observations and experience of older members of the profession and wear off the diffidence and narrowmindedness that always results from non-intercourse with others. He said by way of explanation of the smallness of the graduating class that this was the connecting link between the two- and three-year courses, and under ordinary circumstances there would be no graduating class this year, but on account of allowances for former attendance and attendance at other veterinary colleges there were the few mentioned above, and that what they lacked in numbers they made up in quality, most of them having passed in the honor class, and that the C. V. C. expected to add materially to her reputation through the class of 1898.

NOTES FROM THE HAWAIIAN ISLANDS.—From private letters of Dr. W. T. Monserrat, veterinarian to the Honolulu Board of Health, the following extracts are taken: "I would like to amend your article in the April REVIEW on liver flukes in cattle on these islands by saying that all the cattle reported on were slaughtered under my inspection. It is the only place where veterinary inspection is held, I am sorry to say; in time I presume we will have inspection wherever cattle are slaughtered. The cattle from the other islands are brought here by steamers in lots of 25 to 50. I send you a photo of the methods used in putting cattle aboard of these steamers; the landings are very rough, and cattle are handled in a very crude manner; under the circumstances nothing else can be done. . . . The cattle here are being worried to a great extent by a fly, which some call the 'horn fly.' I have never see anything like it before. I send you some of them by this mail. It is about two-thirds the size of the house fly. They gather on the shoulders of the cattle in swarms and hang on firmly, and I am told they have killed quite a number of cattle on the other side of the island, boring great holes in their necks, and worrying the cattle to death. You may be familiar with this fly; so if you can suggest any means of exterminating them let us know. [Correspondent was referred to the U. S. Bureau of Animal Industry.] . . . I received the 'Blue Book,' and am very much pleased with it. . . . Our Veterinary Bill has passed the House and is now before the Senate, having been referred to the Committee on Health after its second reading. I hardly think it will pass the third reading; and then all it will need will be the signature of the President. We have made some changes in it, and

have placed in it a board of examiners (consisting of two veterinarians and one physician). All non-graduates will have to pass an examination. Graduates of recognized colleges will only have to register. This change was made on account of a number of non-graduates who have been practicing here for the past five years and over, and who can no more pass an examination than they can fly. We came to the conclusion that it would be best to insert this clause and let the bill take its chances. If it doesn't succeed this session, we will try again next year. . . . We are very much worked up over the war, and the city of Honolulu is hung with bunting from end to end. The U. S. S. Charleston arrived *en route* to Manila last Sunday and was given a welcome that stirred the hearts of her officers and seamen. A grand welcome awaits the transport ships, one of which will arrive to-night or in the morning (the City of Peking), and the 'Boys in Blue' will think they have struck some town in the United States. Some \$8000 has been subscribed to entertain the troops as they pass through here. We 'Remember the Maine.' "

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AMERICAN VETERINARY REVIEW.

AUGUST, 1898.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

GRANDEUR OF THE VETERINARY PROFESSION.

While there are many things in common between the medical and veterinary professions, there are also many points of difference. The medical man is a physician and nothing more, when there is included under this term the exactions of sanitary science and police and the various specialties which the demands of the times have imposed upon that profession; it, therefore, has its surgeons, who in most instances openly declare that they know but little of general practice, and hold their heads just a little bit higher than the ordinary practitioner; its gynæcologists confine themselves to their own department so closely as to ignore almost completely other branches of medicine; its oculists and aurists would never be applied to for opinions on other subjects. So, too, there are men who do not go beyond the diseases of the lungs and throat, and not a few delve deeply into the mysteries and intricacies of the wonderful nervous system to the exclusion of every other phase of medicine. The general practitioner treats the every-day diseases as he meets them in his clientèle, referring any serious lesion of the various apparatuses to the particular specialist with whose department the disease or defect may be associated. In this way the practice of human medicine has become narrowed down to an agglomeration of specialties; and while the student at college must obtain a general knowledge of the whole field, his

after-studies are devoted to the channel which his tastes have led him to adopt as his life-work.

Not so with the veterinarian, who must not only make of himself a specialist in every department, but must include within his radiating information a knowledge of the diseases and characteristics of all domesticated animals; and not only of each species of animal, but of each family of the same species. To illustrate these remarks, he is both physician and surgeon to the soliped, and included in this type of patient he must know the characteristics of the thoroughbred, the trotter, the roadster, the high-stepping light-harness horse, the heavier carriage horse, the saddler, the general purpose horse, the three-quarter trucker, and the heavy drafter, as well as the uncertain family of ponies. While a broad education in veterinary medicine will answer in the application of therapeutics to all, each family has its peculiarities, points of value and points of objection, which must fall within the knowledge of the successful general practicing veterinarian. To achieve a mastery of this large field the veterinarian must include that department which is certainly as large and as difficult as any specialty in our sister profession, and the prediction has often been made that in the large cities at least it will yet assume that dignity, and become a "special" branch of veterinary medicine. Surely the frequency and importance of lameness in the horses of our cities especially require the closest and most intelligent study of veterinarians, and it is well known that some men become better diagnosticians than others, principally on account of a taste or a natural bent for a study of the defects of the locomotory apparatus. Added to the scope of this varied information he must have acquired familiarity with breeding, and have become a judge of form and action.

Were the veterinarian to cease at this point he could not hope to be equal to the demands of general practice; for he must be as familiar with the diseases, breeds, characteristics, and traits of the dog as with the horse, and there is more dissimilarity between the two classes of patients than between man

and the canine. He emerges from the stable and enters the parlor, and needs to be as versatile in the one as in the other. While his prescription in the former may have demanded that the druggist shall compound four grains of strychnia for a single dose, he asks in the latter that the pharmacist be careful not to exceed the sixty-fourth of a grain of the same drug lest it prove fatal to his delicate little toy-terrier patient. If the babe is the most difficult patient the human physician has to diagnose and treat, surely the veterinarian can equal it in his canine practice.

But the horse and the dog do not exhaust by any means the scope of veterinary versatility, for a very profitable department of his avocation lies among his ruminating patients. Cattle practice, with many diseases not known in any other species of animal, is the chief reliance of many of the members of our profession; and with this branch more than with any other the demands of sanitary medicine are most pronounced. Bacteriology must be one of his familiar studies, and its developments can only be kept pace with through the medium of our monthly magazines, so rapidly are new facts being brought to light by the incessant researches of the observers of two continents.

Only the demands of space in this month's REVIEW curtails the length of the enumeration of the variety and scope of the knowledge which he should possess, for we have not even finished with the recital of his patients, since we have omitted the hog, the cat, and even birds, which upon the European continent, at least, are demanding the services of members of our profession. This same veterinarian whom we have shown must be proficient in all these departments, cannot feel that he is master of his profession until competent to fill the post of sanitarian, for he must include such a position with his local board of health, and here his proficiency in meat and milk inspection will be thoroughly tested.

We contend, therefore, that the conscientious and educated veterinarian should be considered as superior in every sense to his medical brother, and when it has been possible for higher

preparatory education to be successfully launched in this country his superiority will be recognized and acknowledged. We are getting there fast enough; no science can point to the same amount of advancement in the same length of time. To progress too rapidly would be false and fictitious, without that stability necessary to produce an enduring foundation.

It behooves us all to follow every avenue, then, that can lead to knowledge. With the magnificent programme of the forthcoming meeting of the United States Veterinary Medical Association before you, which will be found elsewhere in this issue of the REVIEW, how can you fail to be present? With your veterinary journals publishing a thousand pages of valuable material every year, how can you withhold your financial support and educational coöperation? If you are contributing to the two greatest sources of professional progress—the associations and the magazines—you can do even more by seeing to it that your veterinary friends do likewise.

THE NEW YORK STATE V. M. SOCIETY.

AT an exact date not yet determined, but probably during the week following the U. S. V. M. A., the Empire State Association will convene in New York City. Although the programme was not ready for announcement when the REVIEW closed its forms, we had a pleasant interview with the energetic Secretary, and from him we learned that arrangements were well under way for a profitable and pleasant annual meeting. The New York City members were insistent in securing the meeting for their city, and they should make it certain that nothing is left undone to eclipse all former years.

DR. FRANK H. MILLER contributes to the profession, through the REVIEW for this month, a valuable article on that bane of long-eared dogdom, "otorrhœa," or "canker." His contribution is so important, so scientific, and so practical that we feel very fortunate in having secured it for our readers, and refer to it with pleasure.

WE regret that the conclusion of Dr. Liautard's translation of MM. Nocard and Roux's important article on "The Microbe of Pleuro-pneumonia" could not be published in this issue, for the reason that the photo plates illustrating it are held in the custom house, and despite our earnest efforts their exit could not be hurried. Its publication will therefore be delayed until the September issue.

A NEW SURGICAL OPERATION on the laryngeal apparatus for the relief or cure of roaring in horses, termed "Arytenoideraphy," is described under "Reports of Cases," and practiced in the clinics of the McKillip Veterinary College.

HELP your profession by extending the circulation of the REVIEW.

[Written specially for the American Veterinary Review.]

OBSERVATIONS MADE IN CANINE MEDICINE.

OTITIS EXTERNA (EAR CANKER).

BY FRANK H. MILLER, V. S., 16 EAST 42D STREET, NEW YORK CITY.

In premising to consider the phenomena of inflammation, which from time to time involves that part of the epidermal appendage reflected over the inner surface of the external ear of the dog, variously known as otitis, otorrhœa, "canker," etc., I would beg to be allowed to do so strictly from the point of view of a practitioner of veterinary medicine, who, for long years cheerfully followed the fortunes of perhaps a vast majority of young veterinarians, in adhering more or less closely to lines as laid down for us by our early teachers, regarding the etiology, pathology, and therapeutics of this common and troublesome condition, oftentimes meeting success of the most indifferent and unsatisfactory kind.

That so many veterinarians should complain of like results is not at all surprising, as a glance at our English text-books with their similarity of construction will show.

They are so far compiled one from another as to beget most uniform results in treatment, whether they be satisfactory or otherwise.

The almost universal tendency in their teaching, as to this condition, is to catch the student up and drift him away among those who are ever inclined to seek difficulties in trying to establish new diseases or rehabilitate very old ones. I have long since been driven to the firm conclusion that otitis externa of the dog, far from being a distinct pathological state, said by some to have a resemblance in some of its features only to an eczema, by others classed as catarrhal and requiring a distinct nomenclature, is plain eczema, nothing more, nothing less.

Like eczema, wherever found, the causes may be multitudinous which produce it, but from a pathological and therapeutical point of view, it is still eczema, presenting various types incidental to variation of causes and the anatomical and physiological character of the tissues involved.

It is doubtless true that perhaps quite ninety per cent. of these cases, as they are brought to us for treatment, show the so-called catarrhal feature to be in the ascendency, yet as veterinary practice goes we seldom if ever treat a patient until the animal has suffered at least many days.

Practical experience in treating dogs almost exclusively has led me to believe that in the vast majority of these cases the initial symptoms which present themselves are substantially always those of eczema erythematosa, of the epidermis, external and close up to the point of its transition in character, and that the later defluction which is so apt to be attributed to a catarrh proper of the limiting membrane of the external ear, including the tympanum, is after all in the main the perfect counterpart of eczema madidans (or weeping eczema) so well understood as seen in other parts of the body.

If this were primarily a catarrh of deep parts of the ear, the early examination of secretions would establish the fact. Such examination, however, refutes the supposition, and post-mortem examination when made, even in severe and chronic cases,

almost invariably reveals a remarkably healthy appearance of the tympanum and canal contiguous thereto.

In no other case can it be more difficult to tell beyond a question where eczema ends and catarrh begins than in these cases; nor is there perhaps another condition which more clearly shows the prudence of the older pathologists who claimed eczema to be a catarrh of the skin.

If we review the labors of those who have toiled upon these cases in the interest of bacteriology we find exceedingly little, indeed I may say nothing, which warrants us in setting these cases outside the pale of skin diseases.

Like eczema of other locations, we are forced to look upon it as being mainly induced by external irritation, rather than as arising from internal conditions, anatomical or physiological in nature. It is very generally said by authors to be an outcome of "filth." Well, I am perfectly willing to grant that the so-called filth is a factor in its development, but if such were more than a mere factor, and its real cause, I am satisfied that every animal would necessarily suffer, inasmuch as all alike would be sufficiently exposed.

This we know is not the case here, any more than that filth begets in all cases eczema in other parts. There are other influences quite as important as filth itself (which is at best a very ambiguous term in medicine) in the production of this eczema of the ears, and they are such as more directly determine the conditions under which such filth exists.

Upon these conditions depends the whole matter of impurities. It is only necessary for me at this time to recall the number of obstinate cases of this trouble coming under my observation, which have developed in animals subject to the most scrupulous care to prevent this accumulation of the so-called ear filth, by frequent washing, etc., to readily understand how great the difficulty an extremely small amount of impurity can cause when conditions favor, and how great and varied the same can be, and still be powerless to do harm where conditions are unfavorable to it.

In these cases we find that excessive moisture can and does produce the required conditions, and indeed may be the direct means of effectually precipitating the very condition it was intended to prevent.

The filth is composed in greater part of the accumulation of secretion of the seruminous glands and desquamated epithelial cells, and can at best be only very imperfectly removed by ordinary methods of cleansing, and the nitrogenous materials make under the action of water, especially if soap be used, a most desirable medium for the growth of those common forms of micro-organisms which abound in the ears, as well as upon the skin of the most healthy and well-cared for animals.

Thus filth, plus moisture and micro-organisms, figure jointly in the production of this condition.

That abnormal moisture is one of the prime essentials, we can safely infer from the comparative immunity which dogs with short ears enjoy, as compared with those with long, heavy, over-hanging organs. The erect ear offers the advantage of perfect evaporation, thereby rendering the action of micro-organisms comparatively inert, for certainly few would deny that such an ear would be quite as greatly exposed to both accumulation of materials and micro-organisms as would those of the pendulous form.

The cropped ear, it matters not in what breed of dogs, is one seldom involved in otitis if properly healed after operation (one good point in this fashionable mutilation).

Take this same subject, of the short, erect ear, cleanse his organs thoroughly and allow them to become perfectly dry, and with a long woolen roller bandage, bind them closely down over the sides of the head so as to effectually prevent evaporation, and allow them to remain confined in this position for two or three days and in the vast majority of cases we will cause to be developed an eczema corresponding in every particular to those cases which occur in practice, which it may take days to effectually overcome by treatment.

In this case the moisture necessary has been derived from

the tissues themselves by rendering natural evaporation impossible, and the normal secretion and desquamation of the cells has been quite ample to give the nitrogenous elements required for the activity of the micro-organisms.

Thus I maintain that the frequent douches of water, and the applications of agents dissolved in water, as almost universally indicated in text-books for the treatment of canker, is not only not indicated, but extremely detrimental to the condition.

We thereby attempt to control an inflammatory state of the skin by the very agent which has been most instrumental in its production.

To this error in treatment more than to any one other, perhaps, may be attributed the reason for the large number of these cases which go on from simple acute otitis, to chronic and proliferation dermatitis, perichondritis, etc., even in the hands of extremely careful practitioners, who, while realizing the importance of antiseptic treatment, fail utterly in its method of application.

When called upon to treat eczema madidans in other parts of the body, we would scarcely devise a line of treatment involving the free use of water, but desiccating antiseptics instead.

That constitutional tendencies in certain animals may predispose to this condition I admit, but such are unimportant as compared with anatomical peculiarities.

That changes in the circulation incidental and inseparable to such conditions, as, for instance, may be expected where dogs swim much in water, especially that of a low temperature, may and no doubt does act as a predisposing cause physiologically, I believe, but that it is often the direct and sole cause I greatly question, and especially so since we know from experience that just as we easily produce the condition in dogs which naturally enjoy great immunity by checking evaporation artificially, so can we upon the other hand effectually prevent this condition, in even the long-eared hunting dogs, which may be called upon to work almost steadily in ice cold water, provided we carefully, and thoroughly, dry the ears out with sterilized absorbent cotton each night, and by turning the ears up over the head and

retaining them in that position by means of the "net," allow of a perfect evaporation of all moisture.

Eczema of the ear, as of other parts of the body, can and does arise from the most diverse causes, but for the purpose of this article I will confine my remarks to those cases which from choice the writers describe as due to "filth," and group them under one head as due to chemical irritation.

When a case is presented for treatment I invariably make chemical as well as physical examination in connection with the history; indeed I have come to feel that a correct diagnosis and prognosis depends almost entirely upon the former.

After examining the organ, both with and without the speculum, I test the secretion with litmus paper, and nearly always find a more or less strong alkaline reaction, invariably due to the presence of free ammonia. This latter I determine by making use of Eber's admirable test as used throughout Europe, for computing the degree of decomposition in meats, before such can be detected by change in color or odor.

This test is extremely simple of application and of inestimable value, consisting of one part chemically pure hydrochloric acid, one part sulphuric ether and three parts alcohol.

The only requirements for its application is an ordinary test tube, perfectly clean and of medium calibre, and a glass rod.

It is used by pouring a few c.c. of the fluid into the tube, which should be at approximately the same temperature as the testing fluid; shake quietly about that the sides of the tube may become moistened and pour off again. While the tube is still wet, smear the tip of the rod in the secretions from the ear and carry it carefully down the tube almost to its bottom, avoiding touching the sides if possible. If free ammonia be present in the slightest quantity, a white vapor will in a very few moments settle down in the tube.

The micro-organisms which figure in this diseased condition bring about their irritation to the tissues by splitting up the nitrogenous materials (filth) and liberating an irritating gas rather than by producing a specific poison, having the power in

all cases to set up otitis ; in other words, I am convinced that any organism which can thus break up the ear secretions and accumulations is capable of producing this eczema.

I am accustomed to compute the gravity of these individual cases greatly by this test, as experience has taught me to consider those which give free ammonia as scarcely ever belonging to the chronic form, where so much structural and functional change has occurred as to place the question of permanent cure in doubt.

Where neutral, and acid reaction is gained, the conditions will be found to be quite different. In these cases the disease proper has passed over and gone, and instead of an eczema we have as a rule chronic proliferating dermatitis, perichondritis, etc., which seldom perfectly respond to treatment.

Regarding the treatment of aural eczema, as it occurs in practice, I can only say the simplest treatment only is necessary, if the selection and methods be judiciously made and carried out.

Cleansing, disinfection, and free access of air are the three all-important essentials upon which to base our treatment, but the mode of cleansing and the agents to use, as well as their mode of application, are exceedingly important points in the successful handling of these cases.

The cleansing of the ears should, from beginning to end, be with sterilized absorbent cotton applied with the ear forceps and not one drop of water should be used.

The disinfectant should be one of the most powerful, and be, at the same time, selected with most careful respect to its special adaptations in such cases, and be brought to all parts with equality and certainty.

To accomplish this satisfactorily I at first make use of hydrarg. perchlor. and spts. vini. rect. in the strength of one to one thousand. This solution I reduce one-half in strength immediately the condition begins to yield to treatment.

I have found this spirit of sublimate to far exceed all other sterilizing fluids, and attribute its qualities, first, to the high

antiseptic powers of the salt, its solubility rendering it possible to reach all parts (which powder alone cannot do satisfactorily) and also greatly to its well-known negative chemotactic action in effectually checking the migration of leucocytes, which figures so largely in these cases.

The alcohol, besides being a perfect solvent for the sublimate, causes it to penetrate to every part, and deeply into the tissues, at the same time desiccating the normal secretions present, and the tissues in general, by its affinity for water and its volatility, thereby removing the conditions under which these cases progress toward chronicity. It is to be mentioned, at this time, that these solutions should be applied once daily only, as their too frequent use stimulates unduly, and, if used heedlessly, can produce grave effects, including ulceration, etc., but is absolutely safe even in the most delicate subject when used once daily.

After the organs have been cleansed as thoroughly as possible with the cotton, pour in a very few c.c. of the spirits, and by carefully pressing the sides of the ear together repeatedly, wash it about for about one minute that it may reach all parts most completely, then allow it to escape, using cotton to dry the excess from the hair, that it may not injure the eye by reaching it.

Then for a second time dry the interior of the ear as thoroughly as possible with cotton tampons, and allow due time for complete evaporation of the alcoholic moisture which it may not have been possible to reach with the cotton and dress with a very slight quantity of thioform. This may be effectually and economically applied by means of the insufflator. The smaller the quantity used the better, so long as it is equally distributed.

If the case be one of unusual severity, and much irritation be manifest by shaking and scratching, I frequently relieve the suffering by thoroughly incorporating .25 of carefully powdered hydrochlorate of cocaine crystals, to each 25.0 of thioform used, and bind the ears loosely back over the top of the head with a net, at least until the urgent symptoms are relieved.

I select thioform in preference to iodoform, dermatol, aristol

and other agents with special respect to its merits in such conditions.

Iodoform in my hands has proven a most unsatisfactory agent to use in these cases, not only because of its odor, but more particularly from its positive chemotactic influence, probably due to its high percentage of iodine. Instead of checking, it directly increases the discharge and is diametrically opposed to the mercuric chloride in this important respect.

Thioform, which is manufactured by a clever combination of sulphur, salicylic acid and bismuth, is much more perfectly adapted to these cases than is either dermatol or aristol, from its being practically odorless and possessing more soothing qualities, but especially from its deeper penetrating activity as an antiseptic on tissues generally, and while it precipitates albumen, as do nearly all the agents used in these cases, its precipitation's crust or pellicle is freely permeable to fluids, thus rendering it more or less impossible for the normal and abnormal secretions to stagnate underneath, and defeat our efforts as is not at all uncommon in the other applications.

These properties along with being practically non-poisonous makes this agent highly satisfactory to use where we wish to bring about resolution in a surface filled with glands actively secreting.

I dress my cases but once daily and most thoroughly, and am pleased to say gain results, which under the "water" treatment I could never have hoped to attain.

I have intentionally omitted to discuss the many complications which not infrequently present themselves in connection with these cases, which under circumstances would take the condition outside of those diseases commonly known as simple skin diseases; otherwise my already somewhat lengthy article would have needed abbreviation at parts I consider vital to an understanding of these interesting cases.

Such complications would in themselves make subject matter for several interesting articles if handled in detail.

ACUTE INDIGESTION.

BY E. H. SHEPARD, V. S., CLEVELAND, O.

A Paper read before the Joint Session of the Ohio and Michigan V. M. Associations,
July 12th.

In coming before you to-day with a subject so common,—one that has given us all an opportunity for thought and experience, and one that with some of us at least is almost an every-day thought, till we become, as it were, insensible to either its causes, treatment or results. I feel that the subject is almost, perhaps, too insignificant to be worthy of the valuable time of this joint meeting,—passing away so quickly and pleasantly; still, these subjects which are a part of our every-day work, as it were, become *too* common. We settle after a little time into a common rut and unless the case afflicted is of more value than usual, we administer the usual dope and accept the results as inevitable, till our patrons often think us heedless, sometimes careless, about what is so much to them.

If you will patiently follow me a few moments—for I promise not to unnecessarily weary you—I will hastily offer a few thoughts on this acute trouble,—never too easy to subdue,—but, on the contrary, often keeping the practitioner, as well as the owner, on the anxious seat for many hours.

When I say “acute indigestion,” I mean quick fermentation of the food in the horse’s stomach, with all its customary complications, for it is seldom we see a case of pure indigestion of the stomach unaccompanied by bowel complications.

Acute indigestion should be applied to those cases originating in the stomach, and all treatment should be first to reach and quell the cause of the trouble; at the same time the already bad effects should be combated.

There is no doubt in my mind but what food grown in different districts, not cured properly, and fed in different ways and under different circumstances (often irrationally); water not pure, or allowed to be taken too cold, and in large quantities, are a few of the direct causes of this trouble, while, perhaps,

the condition of the animal, his treatment before and especially after feeding, has much more to do with causing the disease.

Certain breeds of animals also seem to be more subject to the trouble, especially our heavy stock, used for heavy-draft purposes, consuming large quantities both of the solid and bulky foods, and required immediately to exert themselves before digestion has hardly begun.

Again, often the ability of the animal to thoroughly masticate his food is the only cause of those repeated slight attacks culminating later in a most severe one, because the functions of the stomach have been long interfered with and become weakened.

How often are we called into counsel about some animal that "has trouble with his water" every few nights, and I venture the opinion that in nine cases out of ten where colicky pains are present they are caused by some form of indigestion, and the practitioner who can discern the cause of the little irregularities in the digestive system of the horse is the one better prepared to combat the serious and often fatal complications which arise, as it were, "in the twinkling of an eye."

It is my opinion that we often make a decided mistake in our diagnosis at the *beginning* of many cases of stomach and bowel troubles, and lose time thereby. The early symptoms of acute indigestion are often misleading, with scarcely no change in the pulse; no injection of the mucous membranes; no sweating or trembling; no eructations of gases; no particular change in respirations (only somewhat quickened); slight apparently abdominal pains, and a somewhat anxious expression of uneasiness, which might easily be mistaken for a slight colic attack, and without waiting, and more from the idea to do something and satisfy the owner, a good-sized opiate is administered to relieve pain (tinct. opii, morphia, ether, chloral, chloroform, etc.), with the perfectly natural result that we do not quell the symptoms of uneasiness because we do not reach the cause. But, on the contrary, we blunt the animal's keen sensibility, and gag, as it were, his only method of communication

with us. The delicate nerve filaments near the seat of trouble become somewhat benumbed, and no longer communicate the seriousness of the hidden volcano. The bowel tract is also soothed into quietness; a full peristaltic action, *now* above all other times *most needed* to carry away what flatus and food has escaped the stomach, becomes weak or entirely absent. The rapid accumulation of poisonous gases, unable to find exit, already are contaminating the mucous membrane's delicate network of miniature glands and vessels, thereby reaching and poisoning the blood. The heart responds to the unnatural stimulus, the pulse quickens, the visible mucous membranes become injected, the short and quickened respirations inform us of the unnatural size of the stomach pressing against the diaphragm and whose walls are stretched till their functions have become practically useless. Then we take in the full situation, but the injury done by the benumbing influence of one dose or two, perhaps three, of opiates is hard to overcome; time has been lost, and a case of acute indigestion with all its complications and results stares us in the face. His distress is increasing, regurgitation of gas—perhaps fluids, possibly solids—takes place, till he nearly strangles; sweats bedew the whole body; he trembles and shows his intense agony in every action. Medicine is often hard to administer, and fatal complications are liable to confront us at any moment.

The natural functions of the walls of the stomach have nearly, if not entirely, ceased. The pyloric and cardiac openings *may be* completely closed; if so then we hear no eructations. If, on the contrary, they allow the passage of some of the contents of the stomach—it may prove a safety valve, relieving the tension on the walls—but at the same time making the bowels a party to the trouble and the danger increases.

While I firmly believe that the animal's pain under these conditions is most acute, and that when continued for some time has undoubtedly its effect upon the nervous system, thereby increasing the danger of true inflammation, still the constant

pain or its irregularity, as shown by the actions of the animal, is to us one of the many visible signs by which we may determine the progress of the disease, it being one of the natural results of internal disturbance, and in this particular lesion we *most* need the clear brain of the patient to guide us aright.

To my mind, any preparation of opium, even morphine hypodermically, is contra-indicated, for they tend to interfere with the normal secretions, and certainly constipate and paralyze, as it were, the whole bowel tract. The other opiates above mentioned all have their disadvantages in one way or another, and can only have one retrieving feature at the most—that of making the patient partially insensible to his condition, and at the same time putting us in the same condition regarding the progression of the disease. Not one reaches or has any effect upon the cause to any marked extent, however. The exact condition of the case in hand at the time we are permitted to assume control of it, the length of the attack with its supposed cause, the kind and quantity of medicine it has received, if any, must be thoroughly understood before we can form any consistent opinion as to further treatment.

In any of the earlier stages of the disease the main immediate danger is to prevent suffocation from pressure of gas and possible rupture of either the stomach, bowels or diaphragm, and by this relief we offer one of the best antidotes for the existing pain that can possibly be afforded, for with slight internal pressure an active fermentation may be in progress without the animal evincing but little pain.

The *modus operandi* of using the trocar and canula when necessary needs no comment, for all are familiar with the anti-septic precautions essential to attain successful results.

When used to evacuate the bowel I believe we should not wait too long, as its early use prevents the contaminating influence of the already imprisoned poisonous gases and relieves the strain on the muscular tissues of the part, allowing it a much needed rest, with at least a partial return to its normal condition and actions.

As to relieving the stomach of its accumulated gases by the use of trocar and canula or by tube through the œsophagus, I believe it easier said than done, for I have tried both, and consider the danger attending either operation sufficient to prevent their coming into general practice.

The first evacuation of the bowel of its quickly accumulated gas may be sufficient to allow it to regain its natural action; but, with the knowledge of a progressing cause back of it, and the general appearance of the case, as a rule, a mild hypodermic of eserine will better insure a safe result at that time.

I would not recommend the use of eserine while the walls of the intestines are under severe tension, because I believe the increased forced peristaltic action might easily rupture the muscular walls. But its *conservative* use, considering in this disease that the contents of the bowel are generally of a soft nature, I believe to be productive of good results and almost entirely free from any bad effects. It is quick and efficacious in its action, and has, if used properly, no bad after effects.

To control the fermentive action progressing in the stomach a variety of remedies have been used with varied success. Turpentine and camphor, with large doses of bland oils, are used by some and do fairly well, although the former have a marked tendency to irritate, and under the existing conditions assist in the tendency towards later gastritis, while the latter is so slow in its action and adds to an already overloaded stomach. Salicylic acid, boracic acid, sodium sulphite, or hyposulphite, and dilute carbolic acid, have marked antiseptic actions, and under certain conditions may be all that is needed. Chloride of lime and charcoal act chemically and mechanically, but their administration is often difficult. Sodium bicarbonate will add to the eructations of gas and often bring on regurgitation of the food. Carbonate of ammonia and other prompt stimulants assist, if combined with plenty of the antiferments.

But no one is sanguine enough to affirm that they have a specific, because all know that to be impossible, considering the great variety of causes, and the varying susceptibilities of the

animal. However, we all have some combination we have found to suit our cases the best, and that to-day is the only object of this paper. I hope to offer at least one preparation which is not generally used and I have not as yet seen it advocated. We should bear in mind that the conditions existing in acute indigestion are dependent upon a certain quantity, more or less, of sour, fermenting, decomposing food, and whatever may be done to alleviate its effects is only weakly palliative, and we must strike at the root of the evil, the cause, to prevent fatal effects, and at the same time use remedies which will preserve and encourage the normal secretions and stimulate the natural peristaltic motions of the digestive tract. While all other adjuncts that in any way assist—as external applications of stimulating liniments, injections of warm water per rectum, and protecting the animal from unnecessarily injuring itself, etc., should be conscientiously observed.

If the contents of the stomach are in a fermentative, yeasty, sour condition, and not sweet and mildly digesting, as it should, then some force has acted to diminish the essentials of digestion, and we must supply them, for the stomach and bowel tract will later take much easier care of digesting food than sour refuse forced through them by rough irritating cathartics, with all their attending dangers, and here I say and believe that cathartics are worse than useless, if a rational treatment is prescribed.

I grant that if any preparation of opium is used, yes, in fact, most any opiate, to relieve and make your patient quiet, that a purge will become a necessity, and your complications are liable to be many instead of few. Do not misunderstand me, and think me heartless because I oppose opiates in acute indigestion, for I believe the patient will suffer less in the end by discarding them, especially in the early and middle stages.

In selecting, as I have above mentioned, a digestive principle that I believe is wanting and needed in these cases, I have received with surprise and greatest satisfaction what to me has been startling results in some of the worst cases it has been my

fortune to meet by administering pepsin in solution in quantities of two and three drams at a dose.

In conjunction with moderate doses of carminatives—namely, ginger, peppermint, anise, and capsicum—using aconite according to the condition of the pulse, and in some cases, mild doses of sympathetic sedatives, either belladonna, hyoscyamus or cannabis indica, my experience has been that I have seen decided relief almost immediately, and, with one exception, in all cases not in the last stages, four doses have been the maximum number where all eructations have ceased, pain relieved and digestion apparently resumed. After a little I invariably prescribe (to be followed up for some hours) small doses of hyposulphite of sodium, with small doses of the milder carminatives and diffusible stimulants. The sodium seems to have a wholesome purifying action upon the blood and is one of the best preventives of toxic poisoning.

In acute indigestion there is generally an abundance of fluids thrown out into the digestive tract, and if opiates are avoided and the disease does not continue too long, so that the fluids are reabsorbed, it is seldom that laxatives or purgatives are needed. Demulcent drinks and gruels, with careful exercising, are generally all that is needed.

A SIMPLE AND RAPID METHOD OF DETECTING TUBERCLE BACILLI IN FLUIDS.

BY E. W. HAMMOND, STUDENT OF THE MCGILL VETERINARY COLLEGE,
MONTREAL.

Anyone who has attempted to detect tubercle bacilli in fluids knows how wearisome and uncertain are the ordinary methods. Numerous suggestions have been made with regard to the shortening of the process of detection; some authorities have employed caustic potash to dissolve out mucous and proteid materials, and have obtained fair results by decanting. Others again have employed the centrifugal machines and the hæmotocrit. In neither case do the results obtained appear to

be so certain and the process so satisfactory as that here given. Some authorities have used very complicated methods: I note in *Farming* for April 26th a description of a Russian method, in which the milk is first coagulated by dilute citric acid and the coagulum dissolved by phosphate of soda solution, then sulphuric ether and water are added, the mixture is shaken for fifteen minutes, the solution is allowed to stand, and after the fat is separated the remainder of the liquid is taken and dilute acetic acid is added until the first sign of coagulum appears. It is then transferred to the centrifugal machine giving 3600 revolutions per minute and the deposit is conveyed to two slides and examined with oil immersion.

However, as a result of a series of studies in which, at the suggestion of Dr. Adami, I tried various methods of separating the bacilli and gaining them from milk, I have eventually discarded one after another of the solvents of the various constituents of the milk, and have devised a method which appears to be at the same time accurate, rapid and cleanly. The method is briefly as follows:—

Taking milk to which, preferably in order to arrest the growth of other bacteria which are apt to hide the tubercle bacilli, 5 per cent. of glacial carbolic acid has been added, I take 30 c.c., 15 c.c. in two tubes, then centrifugalize it for 15 minutes (preferably in the hand centrifuge manufactured by Bausch & Lomb, Rochester, N. Y.), the supernating fluid is poured off; the precipitated débris, bacteria, etc., which contains the bacilli, is then treated while in the tube with about 3 c.c. of 5 per cent. caustic potash solution, is mixed up thoroughly by giving a good shake and is left for two or three minutes. The tube is then filled up to the 15 c.c. mark with distilled water and centrifugalized for about 20 minutes. If now the supernating fluid be taken off, the minute quantity of débris at the base of the tube can be examined right away, or if the material is required in a still purer condition completely free from caustic potash, a series of dilutions and centrifugalizations with distilled water can be carried on.

By this method a film can be made upon a slide or coverslip which is free from fat and proteid granules, and contains only the bacteria present, together with any solid débris which may be in the milk or other fluid. To get rid of this foreign matter, if present in any large amount, one may safely filter the fluid at the beginning of the process through the finest gauze. It is wholly unnecessary I find to treat milk with sulphuric ether in order to separate off fats, the caustic potash being useful to remove both fats and proteids from the deposit after the first centrifugalization in a way that is completely satisfactory.

I have employed this method and have been able to detect bacilli in the milk in which they were present in such small numbers that, by inoculating 15 to 33 c.c. of the same milk into a series of over 50 guinea-pigs and rabbits only in one animal (rabbit) was there a development of tuberculosis, and I will go so far as to say that this fact indicates that the method affords a more sure diagnosis of the presence of bacilli in milk than does inoculation. It may be added that from using this same milk I have concentrated down 70 c.c., using distilled water, and in weak caustic potash have inoculated the deposit into a rabbit which now after 14 days is showing definite emaciation and indications of the progress of tuberculosis.

It is scarcely necessary to add that this simple method can be most satisfactorily employed for the detection of tubercle bacilli in other animal fluids; it gives excellent results, for example, with sputum from suspected cases of tuberculosis, and although as yet I have had no undoubted example of tuberculous urine, I have found that it gives a very clear precipitate of bacteria in urines containing a large amount of mucous and pus.

THE SEVENTH INTERNATIONAL CONGRESS OF VETERINARY SURGEONS.

We have received from the Committee of Management the following circular of information and programme of the subjects

for debate, with a request that the REVIEW will give it prominence. We have already made mention of this important event, but cheerfully subjoin the full text of Dr. Lydtin's circular letter, in the hope that as many American delegates as possible may attend. In the light of recent progress in the recognition of veterinarians by National, State and municipal governments in the capacity of sanitary attachés, the profession owes it to itself to have representatives at Baden-Baden in 1899. Surely the United States Bureau of Animal Industry will send one or more delegates, and the United States Veterinary Medical Association can ill afford to fail to have a member or two present.

The circular is as follows :

SEVENTH INTERNATIONAL CONGRESS OF VETERINARY SURGEONS AT BADEN-BADEN, 1899.

In accordance with the resolution of the Sixth International Congress of Veterinary Surgeons, held at Berne in 1895, the Seventh Congress will take place at Baden-Baden in the year 1899. The veterinary surgeons of Baden are entrusted with the carrying out of the arrangements. With the consent of an international meeting held at Stuttgart in June, 1896, they have formed the undersigned Committee of Management, which has resolved to hold the Congress in Baden-Baden in the first half of August, 1899.

The programme is as follows :

- a.* Precautionary measures against the spread of epidemic diseases in consequence of international trade in animals ;
- b.* The prevention of tuberculosis among domestic animals and the use of the flesh and milk of animals suffering from this disease, and, connected with this, the latest demands for an effectual meat inspection ;
- c.* The prevention of foot-and-mouth disease ;
- d.* The prevention of swine fever ;
- e.* The forwarding of veterinary science, especially by the erection of institutions for experiments in diseases and by founding chairs of comparative medicine in colleges for veterinary surgeons ;
- f.* Conclusion of the work of the drawing-up of a common nomenclature in veterinary medicine ;
- g.* Official veterinarianism.

(This programme may be altered or supplemented if generally desired.)

In the proceedings, besides the German language, English and French will be permitted. Arrangements will be made for the immediate translation of all speeches and reports.

In consideration of the great expenses connected with the Congress, the fee for members is fixed at M12 = 12s. For ladies who wish to attend the Congress, ladies' tickets will be issued on application, price M6 = 6s.

Every member, even if unable personally to be present in Baden-Baden, will receive copies of all publications of the Congress, including the General Report. The sale price of this Report, which the members will receive free of charge, is fixed at M16.

Arrangements for rooms for members of the Congress will be made by a lodgings committee in Baden-Baden. We are already in a position to state that those who take part in the Congress will be able to find board and lodging from M6 per day. The town of Baden-Baden has undertaken by arrangement with the Baden-Committee to provide special entertainments and festivities for the members.

The Grand-ducal Government of Baden and the Chancellor of the Empire have generously made a considerable grant towards the expenses of the Congress.

Dr. Lydtin, Geheimer Oberregierungs-rath, Lichtenthalerstrasse 9, Baden-Baden, will be happy to give any further information which may be desired.

The Filiale der Rheinischen Creditbank in Baden-Baden will act as treasurer.

For information respecting lodgings, apply to the Orts-ausschuss des VII Internat. Thierärztl. Kongresses, Lichtenthalerstrasse 9, Baden-Baden.

The Committee of Management, in issuing invitations to the Congress, feels it may safely assure those who desire to take part in it that the time spent in Baden-Baden will not only be of the greatest professional importance, but will also offer the participants the pleasures and amusements of a first-class watering place.

Baden-Baden, 15th June, 1898.

In the name of the Committee of Management of the Seventh International Congress of Veterinary Surgeons.

The President,
DR. LYDTIN.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

NOTES FROM CLINICS OF MCKILLIP VETERINARY COLLEGE.

ARYTENOIDERAPHY.

Arytenoideraphy is a new surgical treatment for roaring due to laryngeal hemiplegia. The operation consists of suturing the arytenoid cartilage to the crico-thyroridean ligament and excision of the thyro-arytenoidean ligament (vocal cord).

From a physiological and surgical aspect, the operation is much more rational than arytenectomy, and, being less complicated, is not followed by the same serious sequelæ.

To date six patients have received the treatment, with results varying from marked improvement in two cases to complete recovery in four.

A detailed description will be submitted to the profession when more data is at hand.

THE PERIOD OF IMMUNITY IN TETANUS.

From the evidence of the following case it would seem the period of immunity in tetanus is very transient.

In March, 1897, a case of acute tetanus was presented at the clinics. Under the usual depresso-motor treatment, the disease gradually aborted in five weeks. Five and one-half months later the disease recurred, with all its acuteness, and resulted in death three weeks later.

In both instances the cause was a nail-prick in a hind foot.

Tetanus antitoxin has entirely been discarded in the treatment of tetanus. Its value as a preventive is indeed doubtful.

MANOREK'S ANTISTREPTOCOCCUS SERUM

has thus far failed to give positive results in the treatment of purpura hæmorrhagica.

RECORD OF A FEW CASES OF ABDOMINAL SURGERY.*

By E. MAYHEW MICHENER, V. M. D., North Wales, Pa.

Case No. 1.—Subject: Berkshire sow, reported by owner to have been in labor forty-eight hours, no delivery. On examina-

* Presented at the semi-annual meeting of the Pennsylvania State Veterinary Medical Association, Franklin, Pa., September, 1897.

tion found one pig presenting, anterior presentation; after considerable work managed to deliver this one pig. After waiting four hours for more and finding there was no progress and sow growing weaker decided upon Cæsarian section (gastro-hysterotomy.) Secured sow on left side and scrubbed right side thoroughly with soap and water, clipped the bristles closely over about a square foot of surface surrounding the line of incision, then washed with 10 per cent. solution of creolin. The surface was then wiped dry with clean towel. Incised skin about six inches from a point two inches in front of angle of ilium downward and forward, in line with fibres of the small oblique muscle of the abdomen, which was incised for nearly the same distance, not, however, quite as far anteriorly and downward as was the incision through the skin. The transverse fascia was then incised to like extent and the peritoneum lifted up by rat-tooth forceps and an opening made large enough to admit the finger, which was then used as a guide for the probe-pointed bistoury, which was used to enlarge the opening in the peritoneum enough to admit the hand.

The uterus containing the young was easily secured and the part of the horn containing the pig was brought out through the opening and found very near the divergence of the two horns. An incision was made at a point near as possible to the body of the uterus and the pig extracted by means of a strong tenaculum placed in the snout. Care was taken that the fluids escaping with the foetus did not touch the wound in the abdomen nor fall into the abdominal cavity. Two other pigs, which were found to be in the distant horn of the uterus, were removed through the same opening. All were dead, the placentæ were easily removed, and all fluids were pressed out. The wound in the uterus was washed with warm water containing creolin—1 part to 20,—and at once stitched up with interrupted suture of waxed linen thread.

Care was taken to invert the edges of the wound so that the peritoneal surface of the uterus came into close contact throughout the length of the incision. In placing the stitches the needle was carried through the peritoneal and muscular coats of the uterus but *not* through the mucous membrane coat. The stitches were placed half an inch apart. The uterus was returned and the wound in the abdominal wall closed by two rows of stitches, the first continuous suture of the peritoneum, the second consisted of two stout wires passed through the skin, one at the upper and the other at the lower third of the incision

through the skin. Each wire was then wrapped figure-of-8 fashion with stout linen suture, this bringing the cut edges of the skin closely together. The space between and beyond the wires was sutured firmly with interrupted sutures, a small opening being left at lowest point of the wound for drainage. The wound was then wet with 50 per cent. creolin solution and animal released and turned into orchard. It was very much exhausted and somewhat lame behind on the side of the incision. The weather being very warm the animal was drenched frequently with water from pump, which she seemed to enjoy very much. Appetite very poor for first three days, then rapidly improved and in eight days apparently all right. In one month was rapidly gaining flesh.

Case No. 2.—Chester white sow. In labor two days, during which time four pigs were delivered by much assistance being given. Sow then seemed to be entirely undisturbed by labor pains for about ten hours, then began to labor feebly and without any results. Operation decided upon and method described in Case No. 1 followed. Nothing different from Case No. 1 except found considerable quantity of fluid in abdominal cavity, which poured out on incising the peritoneum. On exposure to air the liquid turned from transparent to almost white, resembling heated albumen and from very liquid to consistency of jelly.

In removing the pigs, which were four, I found it necessary to make incision into each horn of uterus. Wounds in uterus and abdominal walls closed as before described. Animal very much depressed and little appetite for nearly a week, then began to improve slowly and in three weeks was gaining flesh.

Case No. 3.—Fox terrier bitch. In labor fifteen hours, during which time four puppies—two alive and two dead—were born. The fifth pup I was unable to secure, it not coming back within reach. Secured animal, cleansed abdomen with soap and water, disinfected with creolin solution. Made incision on median line from just anterior the pelvis to near the umbilicus. The uterus was drawn through the wound and found to contain only one pup, which was well back into the body of the uterus. Incised the right horn and extracted the pup alive. Wound in uterus sutured and wound in abdomen closed by close interrupted sutures including both skin and recti muscles.

Animal slightly depressed after operation and temperature, which was before 102, rose, to 104½ in less than two hours, but fell to 101 four hours later. Bitch drank some milk and raw

eggs three hours after operation and next day appetite good. Pup alive and nursing, but was killed by accident when four days old.

This animal made a complete recovery, and showed throughout less disturbance than I have frequently witnessed following ovariectomy.

Case No. 4.—French poodle bitch. In labor three days, during which time three pups were delivered. Found animal very weak, temperature 105. Labor pains weak, succeeded by hard work in extracting one more pup badly decomposed. As no more were likely to be secured from appearances, informed owner that possibly might save bitch by operation as last resort. He consented, and I proceeded as in fox terrier and obtained eight more dead and partly decomposed young. Bitch very weak and threatened collapse after finishing operation; placed her in warm room and gave small repeated doses of brandy and milk; she seemed to gain slowly until about 48 hours after operation, then failed rapidly and died on the third day. Autopsy showed very slight peritonitis, but marked inflammation of the womb. The incisions in the womb had become fastened quite tightly together with lymph bands, making an almost perfect closure.

Case No. 5.—I wish to describe here an accident which occurred during an operation upon a ridgling boar. I have frequently performed this operation, almost always with success, on boars of ages varying from a few months to three years. The method used is, in short, to secure completely on an inclined plane, the head placed downward. Incision is made as in the operation described on the sow. The testicle, or sometimes both, has no certain location, varying from the lumbar region to the internal inguinal ring. Generally, however, it is found well down toward the internal ring.

The accident which I wish to describe consisted of a transverse tear in the small intestines, severing the gut quite one-half its circumference. It was caused by using too great force in attempting to return the intestines through the opening in the abdominal wall, through which they had been forced by the violent struggles of the animal. I informed the owner, who was present, that most likely the accident would prove fatal, but repaired the injury to the gut by turning the torn edges inward and suturing with silk thread and continuous suture, going only through the peritoneal coating of the bowel. Upon inquiry several weeks later, was not a little pleased and surprised to learn that the pig never showed the least inconveni-

ence from the combined operations of removing the testicle from the abdomen, another from the scrotum and the suturing of the bowels.

HYDROPS AMNII IN THE COW.

By M. J. JONES, Veterinarian, Cuba, Ohio.

I feel I am, perhaps, intruding on your valuable space, but cannot refrain from describing a case in my practice, the treatment of which verifies the correctness of a conclusion arrived at by Prof. W. L. Williams, after describing a case of hydrops amnii in a cow treated by himself and inserted on page 180 of the June number of your highly appreciated periodical. He says: "The result in this case indicates that the proper method to pursue is to complete at once the dilatation of the os and evacuation of the uterine contents by physical force," etc. On Jan. 27th, 1898, I received a dispatch calling me to a dairy farm belonging to Mr. S., a banker, in a thrifty country town, situated some two miles away from the farm. On arriving was informed by the tenants that the animal that I was called to see had been dead possibly before the owner had sent the dispatch calling me, but that they wished me to treat another one of the herd that was at the other barn, also informing me they had had several abortions and one death in the last few days, out of a herd numbering perhaps thirty cows. On arriving at the barn found the patient, a six-year-old cow, probably weighing 1100 lbs., in a standing posture, nose protruding, abdomen fearfully distended, respiration very short; was told that she had been ailing for 48 hours. After careful examination by percussion and auscultation, diagnosed hydrops amnii, having been previously informed that she was in her seventh month of gestation. On examining her vagina, found the distended uterus partly forced into the vagina, very tense and hard, but could not find the os; tried by gentle pressure to force the distended mass forward, but failed; after considerable manipulation, succeeded in finding the os, situated several inches below the vagina and considerably to the right. I immediately proceeded to inflate the os by the usual method, which was accomplished without much difficulty, clear liquid flowing profusely; the os and vagina dilated by manipulation of both hands, the liquid continued to flow until apparently 20 or 30 gallons had been removed. At this juncture administered a stimulant, after which made diligent search for fœtus, but immediately on entering the os was much surprised to find this thin band mentioned by

Prof. Williams centrally and perpendicularly located in close contact with the os. Having handled hundreds of cases of obstetrics, in the last thirty years, and never coming in contact with this abnormality, I was nonplussed, but, being encouraged by the remembrance of success in former cases of difficult parturition, I proceeded to explore for the foetus. Standing on a box with my arm inserted to the axilla, and straining every nerve, found it impossible to touch anything, excepting some membranes supposed to be the envelopes of a foetus, which were removed. After several attempts I abandoned the idea of removing the foetus at that time, it being after midnight and very disagreeable. Washed the uterus with a cooling astringent, drawing off nearly all the fluid with a catheter. Repeated the stimulant, after which was surprised to find the animal could walk quite well, having been told when I first arrived that she would fall if moved, and having to call two attendants to assist her in standing by holding a canvas under her, while I operated. Removed the patient to dry, comfortable quarters, leaving her for the night, hoping the uterus would contract on the foetus, when I could easily remove it; but on informing the attendant I would return in the morning, I was positively refused the privilege until he had consulted with the owner, saying he had not been authorized to have me operate on this animal, but the one that was dead, and that he would not take any more responsibility, but would see the owner early in the morning and would wire me if needed. Not hearing from the case for several days, and being very anxious, I inquired of a neighbor what became of the patient. Was told that the next morning there was the head of a foetus protruding at the vulva and that the attendant removed it without difficulty, the mother making a fine recovery without further treatment.

I have been thoroughly puzzled over this band in the uterus, being unable to find satisfactory explanation in my works on obstetrics or from my professional brethren, until I read Prof. Williams description of an autopsy, which no doubt explained the abnormality.

I feel that the knowledge acquired from this one article of the Professor's has amply repaid me for my years' subscription.

PARTURIENT APOPLEXY.

By M. J. JONES, Veterinarian, Cuba, Ohio.

Quite frequently noticing reports in the veterinary journals of treatment for parturient apoplexy and the many different

remedies suggested by the writers, I am constrained to believe that there is by far too great a loss to the stock-owner from this disease, even in the hands of qualified veterinarians ; and having cast my lot with these professional gentlemen, I wish to offer the treatment adopted by myself, being the treatment recommended by Prof. McIntosh. I have used this treatment exclusively in my practice for nearly two years, changing the same when in my judgment the case required it ; not losing a single patient out of quite a number treated.

With your indulgence will describe one case.

On June 16, 1898, was called six miles from office, to remove placenta from a shorthorn cow, said to weigh nearly 1400 lbs., when in full flesh. I found her of mature age, and very plethoric, the owner being a high feeder. On examination I found the placenta attached in a great many places ; removed it after considerable manipulation, using adeps freely, as I always do in such cases, with a view to arresting any absorption that might take place in the uterus or vagina ; advised light diet and appropriate treatment, telling the owner that he had a splendid subject for parturient apoplexy, which statement he ridiculed, saying : " There never was an animal in more perfect health."

Was again called on the 18th inst., at 10 o'clock P. M., and found patient prostrate, the muscles of fore-limbs and neck very rigid, jaws clenched, eyes sunken in socket until they were nearly imperceptible, caused by the opisthotonos, which was very marked ; placed animal on sternum and she propelled herself forward with head raised high, until she came to a post-and-rail fence, which was leaning at an angle of 45° from her. She placed her head on next to the top rail and sat on her haunches, in which position she persisted in remaining for nearly two hours. Diagnosed parturient apoplexy.

Commenced treatment by giving nitrous ether, $\bar{3}$ ii ; spirits ammonia aromat., $\bar{3}$ i ; aquae, Oss. Repeated at short intervals ; found great difficulty in administering, as deglutition was very imperfect. Continued treatment until 3 o'clock A. M., giving 30 ounces of the mixture by that time, after which the patient rallied, got on her feet and walked to the stable, falling over the sill inside ; all this time seeming to be perfectly blind, having to be guided by the attendant. She almost immediately got on her feet, stood there persistently with head hanging down and chewing continuously as if ruminating, but not regurgitating. After a short interval, urinated profusely and in a

few minutes had a free evacuation of bowels. Continued medicine in same doses at longer intervals, until 40 ounces had been given. Patient improving after each dose, but every time she attempted to move the anterior limbs gave way, the patient falling, with muscles of the neck tightly drawn, bringing the head backward to near the shoulders; patient soon assumed a standing posture. At 8 o'clock A. M. left her standing, without any medicine, not returning until 5 o'clock P. M. During this interval she had no medicine and was frequently falling down and getting up. On my arrival found patient much worse, eyes set in head, jaws clenched, deglutition nearly suspended. Continued same medicine in same doses, but it was almost impossible to administer. On lifting head above a level, she would fall and go into paroxysms, but shortly regaining her feet. Continued medicine, spilling nearly half of it, but noting improvement after each dose. After 48 ounces in all had been given, left her for the night much improved. Called in morning, patient still improving; able to chew two or three nibs of corn and drink a little water. Flow of milk fair, bowels normal, urine evacuated freely, locomotion much improved, gave fluid extract of *nux vomica* in twenty-minim doses, every four hours, to tone up digestive organs. Patient convalesced finely and made a perfect recovery with no lesions, except slight paralysis.

PEROXIDE IN THE TREATMENT OF BURNT WOUNDS.

By FRANCIS ABELE, Quincy, Mass.

During our terrible snow storm of last February was asked to attend a horse that had had a live trolley wire fall on it. As when fresh from college, the thought came, "What shall I do?" I could not do as my student used to do, read it up before starting, for I had no literature on the subject. I decided to see him and treat from symptoms.

Found patient in a stable, eating heartily. When led out, he was bright and alert, but very much like a bashful girl, did not want to be handled.

The full length of one side was a brand where the wire had burned through the skin and part of the flesh. The same was true of the inside of one hind leg in several large lines. On the point of one shoulder was a raised mass, the skin of which seemed dry and toughened like the sit-fast of an old saddle sore. I applied and left linseed oil, sodium bicarbonate and laudanum. The next day he was led home and the same with boracic acid

used. The skin soon loosened, suppurating under the scar, separating huge patches of skin and baked muscle. Kept sprayed with Oakland peroxide followed by iodoform mixture. Wounds healed and horse was at work in about five weeks.

Practically I had merely burns to treat. The shoulder scar was where he rested on the rail. Witnesses said that when his feet touched the rail, great sheets of flame shot from his shoes. He would shriek with pain and fall, stagger to his feet and repeat the performance. Why he lived when there were two dead ones, killed by the same wire not a hundred yards away, I never could tell.

You will appreciate, then, as I do why there is no literature on the subject. It would come under burns.

I would here say that I believe the peroxide was the medicine that made the successful treatment. I have known of horses continuing for months with "burn" sores, that I believe peroxide would clean up.

A CONTRIBUTION TO THE PATHOLOGY OF VOMITION.

By THOS. B. ROGERS, D. V. S., Woodbury, N. J.

Perhaps a case of mine may help some one else, so I report it.

Brown mare, had suffered with colicky symptoms for some hours. Temperature normal, pulse fast and full, absolute absence of intestinal murmurs, pupils contracted, pain not severe, but constant. Treatment, eserine, aloes and venesection. Later the patient vomited very freely, the œsophagus becoming dilated until it looked as big as one's arm—the vomit running freely from both nostrils. Post-mortem showed the stomach to be intact and healthy, the cause of death being torsion of the small intestine about a yard from the pylorus.

I report this case because I think it goes to show that vomiting points to the lesion being well forward, but not necessarily to a gastric lesion.

EFFERVESCENT URINE FROM A COW.

By FRANCIS ABELE, Quincy, Mass.

Was called to a cow, Jersey, dehorned, about 7 years old, due at an uncertain time in the near future to calve. Owner thought her laboring to calve. She had just three days previous been floated in a boat some three or four miles, from an island at the outer extremity of Boston harbor. The weather was quite fair and the water smooth on the trip.

Found the cow down, delirious, urine retained, fæces extremely hard, cow very fat. Cow did not respond to treatment and died. I have not told you that upon drawing her urine, it effervesced like soda water or lager beer. As the self commissioned superintendents expressed it, her water had a great "head" on it.

Post-mortem showed pneumonia, calf (heifer) full grown and properly presented; bladder empty, rectum inflamed. I should have said that fæces were hard as rocks and coated with bloody mucous, not blood. Physic and enemas failed to act. Had to use stomach pump to give physic, as too weak to swallow.

All that bothers me is, why did that urine effervesce? Has any one else ever seen the same? Can any reader account for it?

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

INTUSSUSCEPTION IN A MARE [*By Mr. W. Lewis, M. R. C. V. S.*].—This animal was taken ill one evening and during the night showed acute abdominal pain. Temporarily relieved by treatment, she had again violent colics, alternated with intermittent diminution in the symptoms—the temperature raised at one moment to drop down shortly after; there was constipation; the extremities gradually became cool; the countenance very anxious, and towards the last of her sickness she was attacked with sudden intense pain, accompanied by violent straining, and rapidly becoming delirious, dropped dead. At the post mortem a splendid specimen of intussusception was found, a piece of the ilium about 20 inches in length had passed through the ilio-cæcal valve into the cæcum, the telescoped portion being quite black from strangulation.—(*Vet. Record.*)

PERFORATION OF THE INTESTINES BY *STRONGYLUS TRACANTHUS*.—A mare that had been suffering with colic was found by the author in a dying condition. Death took place a few hours after. The lesions at the post mortem were unusual. "On opening the abdominal cavity, two or three quarts of slightly blood-tinged fluid mixed with ingesta escaped, and the whole surfaces of the intestines and mesenteries were seen to be flaked over here and there with the same substances. The whole of the intestines were carefully removed and externally were perfectly normal in appearance with the exception of the

terminal two feet of the ilium, which were very much inflamed and of light claret color, covered with black spots and perforated in eight or nine places, the holes varying in size from a large pin's head to a sixpenny piece. The mucous membrane of the cæcum and colon was covered with a great number of strongylus tetracanthus, and thousands more were lying deeply imbedded in its substance, and there were a few lying free on the surface of the bowel's contents. The ilium was empty, but there were numerous strongyli present. In the wall of the anterior mesentery were found several well developed specimens of the strongylus armatus.—(*Vet. Record.*)

PARALYSIS OF THE RADIAL NERVE.—This subject has called the attention of veterinarians in England in relation to its etiology, a case of dropped elbow having been related which was attributed to a fracture of the first rib. Several cases have been published on the subject and among the principal is an article from Mr. E. W. Hoare, F. R. C. V. S., where he relates several cases, some where fracture of the first rib existed and others where it was absent. Very properly Mr. Hoare concludes that after consideration of a series of cases one is justified in asking whether the condition of "dropped elbow" always depends on a constant lesion, and to accept the idea that cases presenting the symptoms of "dropped elbow" may depend on fractures of the first rib or on paralysis of the radial nerve from some unknown cause or on some lesion of the biceps extensor brachii muscles. Some cases will recover readily and completely, others, on the contrary, will linger and render the horse entirely useless. These last are frequently due to a costal injury.—(*Vet. Record.*)

RUPTURE OF THE CÆCUM [*By Mr. W. A. L. Robertson*].—This old mare (12 years) had for the past eight years been subject to colicky pains which were attributed to indigestion, due probably to bots. Her teeth were attended to—she received treatment to relieve her from the bots, but after a temporary improvement was again taken ill. She had dull pains; sat on her haunches, groaning and straining severely; rectal examination revealed a large rounded doughy mass, supposed to be an impacted colon. She died. Post-mortem showed at once evidences that intestinal rupture had taken place, which was traced to the arch of the cæcum, below which and to the right side was seen what at first sight appeared to be a large impacted portion of the first division of the great colon, but upon removal proved to be a large dilatation in the arch of the cæcum,

stretching to the abdominal floor, measuring about 18 inches by 12 by 9, full of dry ingesta, resembling in character that found in the omasum of the ruminant. At the superior border of this was found the rupture, about six inches in length. There were some 20 or 30 pounds of food in the sac, a weight which was the immediate cause of the rupture.—(*Vet. Record.*)

SCIRRHUS CORD AND IODIDE OF POTASSIUM [*By Mr. J. Walker, M. R. C. V. S.*].—An eight-year-old cart horse after castration with actual cautery had become affected with scirrhous cord of the near side. The cord was about the size of an average man's thigh, with a fistulous wound. The animal appearing in too weak condition to stand a surgical operation, iodide of potassium was resorted to and begun on April 25th. A bolus containing one and a half drachms of the iodide was given morning and evening, and the wound was also injected with a solution of biniodide of mercury and potass. iodide. Improvement was noticeable on the third day. Recovery was complete on the 14th of May; wound healed; complete disappearance of the cord; most remarkable improvement in condition and spirits, as lively as a two-year-old.—(*Vet. Record.*)

RUPTURE OF THE ŒSOPHAGUS [*By Mr. T. Charles Howatson*].—This case is that of an old cob which was supposed, by his owner to have glanders because he had a peculiar discharge from the nose. The author saw the patient and found that instead of suffering with glanders he presented the symptoms of affection of the Œsophagus with possibly rupture, the lower part of the organ, near its entrance to the thorax being the seat of a soft swelling, with emphysema extending up the jugular groove. Notwithstanding treatment of fomentations applied on the œdema to try to subdue it, the swelling kept on increasing in all directions, extending over the whole body toward the last days of life. At that time, the pulse had risen to 80 per minute, the temperature was 106° and the breath very offensive. On the post-mortem it was found that the Œsophagus was highly inflamed and ruptured longitudinally on each side (each rupture measured 1 ½ inches at the seat of the swelling). It is unfortunate that notwithstanding careful researches, no traumatic cause of the ruptures could be found.—(*Vet. Journal.*)

VOMITION AND MESENTERIC EMBOLISM [*By Mr. J. Cormachie, M. R. C. V. S.*].—The clinical history of this three-year-old filly is brief. She was a moderate feeder, had somewhat capricious appetite, and at last is taken with abdominal symptoms and vomiting of a dirty, straw-colored, ill-smelling fluid, with

particles of hay, etc., floating in it. This vomiting ceased entirely an hour or two before death. The post-mortem is described as follows by the author: "Naturally we went straight to the stomach, expecting to find the chief lesions there, and I must confess we were a little amazed to find next to nothing wrong. It was, of course, very much distended and full of fluid, but, with the exception of the epithelium covering the mucous membrane being very much macerated and peeling off, there was nothing else to be seen to account for the stomach symptoms. This being so negative, we decided to look elsewhere for the principal cause of death, and we were rewarded by finding the pancreas, intestines and mesenteries presenting an appearance unlike anything either of us had ever seen before. The former was quite green and looked like just becoming gangrenous, while the intestines were very red and congested looking. The most noticeable feature was the beautifully mapped-out condition of the whole mesenteric venous system. Every vein, large or small, and every capillary was distended to its utmost with blood, showing up a bluish-green or black color. The mesentery had quite lost its transparent, delicate appearance and become very thick and heavy, due, doubtless, to an exudation of serum from the distended veins and also from the lymphatics, for they, too, seemed to be in a similar congested condition. . . . After a long and careful search we found an *ante-mortem* clot in the anterior mesenteric vein. That part of the vein occluded by the clot had a constricted appearance and its walls were considerably thickened, while the part beyond was greatly dilated. All the veins which unite to form the anterior mesenteric were enormously distended and could be easily traced to their source in the large and small intestines. There was no doubt as to the *ante-mortem* nature of the clot—it was pale in color, and, although friable, still adhered to the tunica intima. It seemed to cause complete stasis of the venous circulation."—(*Vet. Journal.*)

ITALIAN REVIEW.

ABSTRACTS FROM THE RECORDS OF THE CLINIC OF THE MILAN SCHOOL.

BY PROF. LANZILLOTTI-BUONSANTI.

PARASITIC (?) FIBROMA, WITH CALCAREOUS WALLS, ON THE EXTERNAL FACE OF THE FLEXORS OF THE PHALANGES OF THE RIGHT HIND LEG.—A horse, nine years old, has had

for two months on the external face of the right hind metatarsal a swelling, which is gradually enlarging, notwithstanding repeated local irritating frictions. The tumor is as big as a large nut, painless, fibrous in consistency; its base is wide and spread on the lower third of the deep flexor of the phalanges. There is but little lameness. Supposing it a parasitic fibroma, extirpation was recommended. The animal cast, an Esmarch bandage was applied, and careful dissection with complete removal of the growth was made, the wound was curetted afterwards, a drain tube applied and the skin sewn with sutures. A continuous warm irrigation was applied, and in two weeks cicatrization was complete. Examination with the microscope failed to reveal the presence of parasites.—(*Clinica Veterinaria*.)

SIDEBONES OF THE RIGHT FOREFOOT.—NEUROMA AFTER NEUROTOMY.—A twelve-year-old having become lame by a sidebone on the external side of the right fore foot, was neurotized and relieved of his lameness. Three years after, the owner noticed a swelling on the inside of the same foot, which proved to be a similar ailment (ossification of the internal cartilage). Besides this new condition, on examination of the cicatrix of the first operation, a swelling was discovered, not very large in size, fusiform in shape, intimately adherent to the skin and giving rise to much pain when pressed upon. There was considerable lameness. As both lesions might be the cause of the disturbance of locomotion, it was decided to perform neurotomy on both sides of the leg. The operation of the inside was simple and that of the external side made so as to allow the entire removal of the neuroma which had formed at the ends of the divided nerve three years before. The wounds, after receiving a drain tube, were kept under continued irrigation of cold sterilized water and went on rapidly towards cicatrization, which occurred in a very short time. The new formation consisted of fibrous connective tissue, without nervous fibres. Out of many hundreds of cases of plantar neurotomy performed by the author, this is the second case only where such complication of neurotomy has been observed.—(*Clinica Veterinaria*.)

THICK CICATRIX OF THE FACE WITH HYPEROSTITIS OF THE NASAL BONE.—A four-year-old colt was disfigured by a thick cicatrix over the nasal region, following a contused wound that he had received on that part of the face. The horse presented a swelling, measuring four centimeters in dimension, extending upwards and laterally; it was hard, painless and adherent to the external surface of the nasal bone. The owner

desired to have it removed and to have whatever was necessary done to have the ugly appearance of his horse relieved. An incision was made on the median line, the skin separated, and the subcutaneous tissue exposed. The entire swelling, which consisted of fibrous connective tissue, adherent to the nasal bone, was removed, the calcareous deposits on the surface of the bone were ruginated, the edges of the skin brought together with sutures, and the wound treated with irrigation of cold sterilized water. Cicatrization by first intention took place and left no blemish.—(*Clinica Veterinaria*.)

SEBACEOUS CYSTS OF THE FALSE NOSTRILS.—This unusual case presents a double interest; first, because of the presence of the cyst in both nostrils at once, which is rather uncommon, and, second, on account of the treatment resorted to by the author, who instead of using the ordinary operation of puncture of the cyst, removal of its contents, etc., preferred the more delicate operation of extirpation of the two sacs by one single process. The animal being cast, and the lower part of the face shaved and thoroughly disinfected, an incision was made on the median line parallel to the long axis of the cysts. The skin was then carefully dissected on both sides until first the cyst of the right side was reached and exposed. Unfortunately when the dissection from the inner skin of the nostril was about being carried out, a sudden movement of the head of the animal made the bistoury plunge into the cyst, which was emptied of its contents; the enveloping membrane of the cyst was then removed. The left cyst was successfully exposed and isolated. The wound was disinfected, drain tubes placed in, the skin closed with sutures, and a dressing of iodoformed collodion applied. In eight days the drain tubes were removed, and two days later the horse discharged cured. The contents of the cysts were of the same nature as that of cysts found in that region.—(*Clinica Veterinaria*.)

VENTRAL HERNIA OF THE RIGHT HYPOCHONDRIAC REGION.—A mare of irritable disposition became cast one night in her stall, and was found in the morning with one hind leg over the stall partition; she had struggled much to relieve herself and when she was relieved presented an enormous swelling on the right side of the abdomen. This was treated for a week with cold applications and clay mixture, but had only reduced a little. When the mare was shown to the author, the swelling was yet quite large and œdematous. Located on the right side, behind the last rib, it showed in one part a depression which

permitted him to detect through the skin the presence of an opening, the diameter of which could not be well made out on account of the irritability of the mare. Unable to relieve the œdema by massage, it was decided to resort to irrigations. These were applied for several days and when the œdema had subsided there remained but a little tumor, about the size of an orange, at the centre of which a small opening of the muscular walls of the abdomen could be detected. The principal part of the tumor could not be formed by the protruding intestines, but by the skin and the subcutaneous tissue underneath. On account of the condition of the lesion, radical interference was not considered justifiable and treatment by nitric acid was resorted to. Two applications of this caustic were made a few days apart. These were followed by a swelling which gradually subsided. A cutaneous slough took place two weeks after and the wound resulting from it treated with dermol ointment of ten per cent. Recovery was completed in six weeks' time. —(*Clinica Veterinaria*.)

THE VALUE OF TUBERCULIN.

DETAILS OF EXPERIMENTS UPON A NEW HAMPSHIRE HERD BY
THE STATE CATTLE COMMISSIONERS.

The following report has just been issued by the New Hampshire Board of Cattle Commissioners, and published throughout the New England agricultural press :

CONCORD, June 25, 1898.

The attention of the Cattle Commissioners was called June 12, 1897, to a herd of thoroughbred Holstein cattle owned by Mr. F. B. Shedd, of Northfield, an extensive land owner, cultivating and improving one of the finest farms in New Hampshire. The tuberculin test had been applied by a veterinarian, employed by Mr. Shedd, to 21 cattle, 12 of which failed to pass and in which the temperature reaction was very high. Two of the twelve were advanced cases of tuberculosis and had been destroyed before the arrival of the Commissioners. The ten animals remaining, to which our attention was called, consisted of nine thoroughbred Holstein cows and a thoroughbred Holstein bull, the latter weighing over 2000 pounds, all of which were under four years old. We found the nine cows isolated from all other cattle and so much excitement prevailed that the enclosure in which they were kept was a source of serious alarm to many of

the neighboring people. The bull had been assigned the entire barn and the general appearance of all the cattle was vigorous and healthy.

We stated to Mr. Shedd that it was not our practice to destroy animals simply upon the result of the tuberculin test without other evidence of disease. To this position strong exception was taken by the owner of the cattle, who expressed a very decided opinion that the cattle should be destroyed. After a lengthy discussion of the matter, Mr. Shedd offered to contribute the ten reacting animals free of cost for the purpose of an experiment to determine, as far as possible, the proper course to take with cattle in a similar condition. This generous proposition was accepted by the Commissioners, with the understanding that at the end of one year a report of results should be made to the public and, if advisable at that time, the remaining animals in the experiment should be killed and examined. Some idea of the generosity of the gentleman in contributing the cattle can be obtained from the fact that these ten animals were easily worth \$1000 if sound, and, according to the law of appraisal for condemned animals, would have cost the State \$500 if destroyed. The ten animals were taken to Andover June 25, and the year having expired we make a report in accordance with the agreement.

The nine cows were placed upon an isolated farm where they were given such sanitary treatment for the promotion of health as any dairy cattle should have. This includes good ventilation, light, exercise, and moderate feed. These animals were kept in the open air both day and night, except in stormy weather, and for six months the milk of the entire herd was thrown away or fed to pigs. When these cattle were brought to the town some objections were raised on account of endangering other herds, so intense was the fear of tuberculosis, but there being no objection on the part of the adjoining land owners, there was little attention given to this unnecessary scare. The bull, owing to his size and strength, was kept in another section of the town where he could be properly handled. These animals were tested with tuberculin by a disinterested veterinarian September 12, December 9, February 23, and those not previously killed, May 9. Five of the ten animals passed the test successfully September 12, and five, including the bull, failed to pass. Owing to the inconvenience and expense of keeping the bull, and the supposition on the part of a few people that he was badly diseased, he was killed soon after the test

in September, although there was no previous indication of disease from a careful physical examination. He was killed for the purpose of experiment and carefully examined by a veterinarian in the presence of many people, but the examination failed to reveal any more evidence of disease than can be found in a large percentage of the cattle in the country to-day. It was so infinitesimal as to require no consideration upon any health basis and was strong proof of the extravagance in destroying animals by the test alone.

Only three of the nine remaining animals failed to pass the test applied December 9, and in one of the three the disease had developed sufficiently to be detected by physical examination, and was condemned. These three were isolated from the balance of the herd and their milk thrown away. They were again tested February 23 with no material change in the result, and were taken to Concord March 29 and destroyed and examined in the presence of many witnesses. The one condemned by physical examination was found to be a well-developed case of tuberculosis and should be destroyed. Although the other two, killed at the same time, had failed to pass the test, there was no physical evidence of disease and they were destroyed for the purpose of ascertaining their condition and for the information sought in the experiment. After a very thorough post-mortem examination by a veterinarian, slight evidence of disease was finally found, but it was even less than that found in the bull and was in such condition as to lead to the conclusion that it had not only been arrested but was on the way to ultimate recovery. How much this result was due to the treatment of the animals and how much to the alleged curative qualities of tuberculin is a matter of conjecture only. There are no developments of science in regard to the nature and characteristics of bovine tuberculosis that warrant the destruction of such animals.

The remaining six animals were tested with tuberculin February 23 and May 9 and all passed the test each time. Their condition from a physical examination has the appearance of perfect health. Since December 15 they have been in possession of a farmer who has fed and cared for them for their income, thus incurring no expense to the State. To all appearances and from any form of examination they are as healthy and vigorous as any cattle in the State.

The year for which the experiment was undertaken having about expired, the following correspondence recently passed

between the commissioners and Mr. Shedd, the contributor of the cattle, which will be of general interest :

The report then gives the correspondence between the Commissioners and Mr. Shedd, the spirit of which is as indicated in the text of the document as above.

The cattle were returned to Mr. Shedd, June 24th, and the experiment closed. This special report is made public at this time in order that every owner of cattle in New Hampshire may have the earliest possible information in regard to the result of this experiment, the minute details of which have been carefully noted and recorded and will be found in the biennial report to be issued at the close of the year.

When the matter of dealing with contagious diseases of animals was placed by the legislature under the direction of the executive officer of the State Board of Health, the State Board of Agriculture, and the State Grange, it met with a vigorous protest on the part of those officers without avail. Finding the execution of the law thrust upon us, we have endeavored to enforce its provisions with due regard to the interest of the State in the matter of public health, which should be the ultimate result of all action legitimately taken.

The policy outlined at the outset, and resolutely followed to the present time has been sustained by the result of this experiment and is being adopted in the States around us where a more radical policy has previously prevailed. In the State of Massachusetts, where more than \$750,000 have been spent during the past four years and where every animal reacting to the tuberculin test was destroyed, the whole matter has been abandoned. In Connecticut, where the same extravagant policy prevailed, the authorities are now working upon practically the same line as in New Hampshire. Other adjoining States are falling into the same line. This means the destroying of tuberculous animals, detected by a physical examination, and the advocacy of sanitary measures for the prevention of the disease. We have faith in tuberculin as a diagnostic agent and depend upon it for certain purposes, but not as authority for destroying animals. It is a fact worthy of note that during all the unreasonable scare and extravagance around us in regard to this matter, the Cattle Commissioners of New Hampshire have attended to every legitimate call for action, made an inspection of every herd where symptoms of tuberculosis were reported, destroyed every tuberculous animal detected from a physical examination,

advised in regard to changes necessary for prevention of further development of disease in every instance,—and yet have expended but about one-half the money appropriated and available for this purpose. The balance is in the State treasury and the cattle it would have paid for are alive and causing danger to no one.

We believe action to the extent taken in New Hampshire is advisable for the protection of public health. We have abundant evidence that there has been a remarkable reduction in the bovine tuberculosis existing in New Hampshire under the action taken and believe it to be reduced to about the minimum point consistent with expense. It can never be eradicated, but should be held in check at the lowest possible ebb largely by the sanitary conditions provided by stock owners. We consider the herds of the State exceedingly free from disease and they can be kept so if the necessary precautions are observed. Educational work in securing these conditions is as essential as the killing and burying of diseased animals. A reasonable expenditure in both directions will be found advisable.

IRVING A. WATSON, *President.*

N. J. BACHELDER, *Secretary.*

Board of Cattle Commissioners.

BRIBE-TAKING BY VETERINARY SURGEONS.

PURIFICATION OF THE PROFESSION FROM SUCH PRACTICES
ESSENTIAL TO CONTINUED PROGRESS.

NEW YORK, July 20, 1898.

Editors American Veterinary Review :

GENTLEMEN :—I note in the July number of the REVIEW, an article entitled " Bribe-Taking by Veterinary Surgeons " ; and, while I agree with the REVIEW that it does not exist to the extent pictured by your correspondent's informant, in his public onslaught made upon veterinarians in general in New York City, yet I feel certain that there were grounds for at least some part of his statements, as I do not think they would have been made entirely unprovoked. And, while it is extremely harrowing and humiliating, as well as disgusting, to read such statements, and to know that they have been publicly proclaimed against a profession that has been struggling on this continent for the past quarter of a century for supremacy in everything that is elevating and ennobling, pioneered by one of the noblest of its members, whose one great aim in life has been

its advancement and elevation, at least to the level of our sister profession, and above all defiling influences, and who is to-day (while indulging in a well-earned rest in his native home) congratulating the profession on what it has accomplished, yet it is equally refreshing to note the noble sentiments embodied in the honest appeal to the REVIEW editors for the truth (which he trusts will be a refutation of the charges) and to know that this appeal,—expressing his fine sense of honor and regard for Alma Mater's teachings,—emanates from a member of the profession so charged. That appeal alone is a denial of the *general* application of the charge; and while there are such men in our ranks (and I am satisfied there are many such) we cannot, as a profession, fall into such degradation as was pictured to this young veterinarian. Let him continue to hold to his noble sentiments and he will find he has the loyal support of the *professional* element of the veterinary profession.

Your correspondent states that he thinks such men should be "kicked out of every organization with which they have the effrontery to associate themselves." I quite agree with him, as such men can in no way benefit an organization, as their sentiments cannot be other than deleterious to their associates; but at the same time, I am of the opinion that once it was known to the members of an organization that a fellow member was of such a character (and it certainly would have to be known before there would be grounds to eject him) his expulsion would not have much weight with him, as he would have no further use for the organization anyway. I feel certain, however, that there are extremely few men engaged in the practice of veterinary medicine, as a *profession*, in this metropolis, who stoop so low as your correspondent's informant says as to put fixed prices on their honor, and barter it for gold. For what more or less is a man doing than bartering his honor and his soul for gold when he passes a horse for *sound*, knowing that he is *unsound*, for a consideration, or refuses to pass a *sound* horse as such, unless the dealer pays his "scheduled demand," when he has been employed by a client to render an honest opinion to him on said horse.

It seems to me that the Lexow Committee two or three years ago clearly demonstrated that "bribe-taking" and "extortion" were and are "misdemeanors, punishable by fine or imprisonment," and if the dealers would protect themselves from these aptly termed "sharks," or extortionists, by an appeal to the legal authorities, instead of complying with their

demands, and then making a public clamor against the veterinary profession at large, the dealer's claims would be satisfied, the extortionists get their just deserts, and the *profession* continue to enjoy the confidence and respect which it justly deserves.

Yours respectfully,

ROBERT W. ELLIS, D. V. S.

THE MODERN HIGHWAYMAN.

The gentlemanly highwaymen of olden times relieved their victims of the spare cash which they happened to have about them without taking the trouble to present a bill in vindication of their right to do so, and their despoiled customers were glad enough to get off with the loss of their cash and jewels, without having their ears slit for making remonstrance. But those urbane gentlemen of the road ran a greater risk of their necks than do the bandits of modern society who go about enveloped in a mantle of security thrown around them by their victims who employ them. Gentle reader, raise the mask, and do you not recognize in the swell coachman the Dick Turpin of the age in which we live. True, he does not demand his master's purse; it just comes to him as slick as though it traveled over a greased runway to get there, and the coachman looks upon the transfer as a right to which his position entitles him. If the society man, ambitious to have a swell stable of stylish horses, cobs and trotters, would, as the boys say, tumble to the systematic and autocratic pilfering which is constantly going on to deplete his purse, ruin his property, and rob him at every turn, and would employ reputable horsemen and liverymen to supervise his stable affairs, he would save his money and find greater enjoyment and accommodation for his outlay. The New York *Telegraph* very truthfully tells the story, and we commend it to the stable owner of society:

"The coachman's bills represent many a dollar never earned; he divides with the tradesmen; unscrupulous veterinary surgeons are parties to the general game for swindling the rich. The fact that there is an organized system of robbery in this city of the majority of its wealthy and fashionable members is not generally known, and the idea would hardly be credited by the intelligent citizen, nor would even the victim of the powerful clique himself believe it possible that he was being held up in such a matter-of-fact and successful manner at

first glance. The facts are in evidence, however, and there can be no getting around them. The cheerful victim of this little bunco game is the society man, who feels that he must have his pair of stylish horses, his cob, or his trotter to appear before the public in the proper way. Some there are who go in for big stables, having a new turnout for each entertainment or day in the week. These must pay heavily, indeed, for their little diversion, as the larger the purse the greater amount demanded by the bandits of Manhattan.

"The bandits are none other than 'Jeems' and 'Enry,' the swell coachmen who are in the main smart English horsemen, and who flourish and wax fat on their clever scheme. The coachman is the principal thief, the head of the order of banditti, but he has numerous aids and abettors. The smith who has charge of shoeing, plating and other work of the kind, is one of his trusty allies; often an unscrupulous veterinarian has a hand in the pie, and altogether the man who finds it impossible to get along in this world without his carriage and pair is fleeced right and left until the wonder is that he will stand it.

"Plainly told, the coachman has entire and absolute charge of the horses in almost every stable in this city, and he is permitted to act as he sees fit in the management of the turnout, which means that he has the power to buy horses, have them shod, clipped, fed, and attended to in every way necessary by whoever gives him the largest commission for the privilege of rendering the bills. This is the system, and if any one believes that the cheerful bandit who has all this power is playing any favorites or overlooking any bets, all he has to do is to get a glimpse at some of the bills that are turned in from the veterinarian, the smith, the feed-man, etc. Some of these are most astounding from a practical point of view, and would naturally indicate that they are never even looked at by the owner who pays them.

"There are many tricks of the trade, and they are all worked at some time or other on the unsuspecting society man, who, despite a most stupendous bluff, rarely knows a horse's hock from his withers.

"When things go a little slow for 'Jeems,' 'milady' finds it impossible to get her carriage some fine morning, because the horses are lame. This is deplorable, but what are you going to do about it? Simply hire a cab instead. The horses must go to the smith, or the veterinary surgeon must be called to look after them. The next day they are all right, and a comfort-

able little bill is sent in and paid without question, when it is any odds that there never was anything whatever the matter with them.

"The coachman decides who shall attend the stable, and while, of course, he must keep his charges in pretty good general condition, he is not likely to secure the best veterinarian in case of real illness, because the first-class man would hardly enter into any scheme to rob the owner. So the unscrupulous surgeon is called in, charges double the price, and does inferior work. If the owner should by chance have an idea of getting a particular man to do the work, in a majority of cases his plans are knocked in the head by the treachery of the coachman. Medicine ordered is tossed out of the stable window; the horses do not get better; the coachman claims to know a man who can fix them up in no time. He is called, and they are fixed up, and the two conspirators divide the profits. So it goes, through all the ways in which it is possible for the horse owner to be fleeced, beginning with his purchase of the horse, and winding up with the carriage man and the things that are needed about a stable.

"The whole system is based, of course, on the ignorance of the owner, and it is surprising that any one could remain content to know so little about his own property, while so often professing a genuine love for it. It is safe to say that not one out of ten owners of horses in the city has any intelligent idea of them, what it should cost to keep them, when they are sick or well, well or badly fed, shod and cared for, or why he ever bought them in the first place. The whole thing is planned and arranged for him, and he accepts without a question, and pays the bills."

CORRESPONDENCE.

THE TRUE STORY OF THE ARMY VETERINARY SURGEON.

FLUSHING, NEW YORK CITY, July 18, 1898.

Editors American Veterinary Review:

DEAR SIRs:—The item of the *Breeder's Gazette* in regard to "Competent Veterinarians for the U. S. Army," as cited in your news columns of the July issue, needs correction, as otherwise the faulty comprehension of the present status of the army veterinarian, as stated in this article, may be carried further and lead to exaggerations in our petitions to Congress which may result in harm rather than good.

To begin with, the opinion that it is "impossible for the army veterinarian to obtain a higher rank than color-sergeant" is correct only in so far as he cannot advance in rank or pay. But the U. S. Army veterinarian is *not* a soldier, therefore he cannot be a sergeant; he is a civilian without any specified rank. It is true that the official warrant—not commission—transmitted by the War Department to the newly-appointed army veterinarian reads that he is "appointed a veterinary surgeon with the rank of sergeant-major, and that he is to be respected accordingly." But these warrants were printed shortly after the Civil War, and, although still used, are no longer in accordance with the present opinion of the War Office. The Adjutant-General and the Secretary of War have repeatedly ruled that the "veterinary surgeon is a civilian employed to treat sick and disabled public animals." This puts him in a doubtful position as to his rank, but gives him personally more freedom in the exercise of his duties, and a chance to associate with officers if his culture enables him to do so. But, unfortunately, there have always been some veterinarians in the army who were perfectly willing to be recognized as sergeants, men whose inborn subordinate souls were tickled by the friendship of the commissary sergeant as the lord of the store-room. So I say that the old phrase, mentioned again in the above article, that "the day of the horse-doctor has passed," is not true; we have them yet with us and the woods are full of them.

Of course, the majority of those who wish to see the army veterinary service reorganized are not personally interested in it, but wish to have the disgrace wiped out that still hangs over the American veterinary profession. Yet I fear the bill before Congress will never be a success, and I have repeatedly said so. To ask Congress to give the army veterinarian a commission as second lieutenant is simply to ask a personal favor without any guarantee that the veterinary service will thus be materially bettered. From my knowledge of the army service it would not do so. Therefore, we should present to Congress a bill which first of all guarantees the Government an efficient veterinary service by making it a branch of its own. That this can only be accomplished by a competent veterinary corps is self-evident, but the officers of this corps should not be mere second lieutenants, but should rank at least from captain downward. And they should not be men who are only able "to treat sick and disabled public animals," but they should have gained special

knowledge on the breeding, selection and use of cavalry and artillery horses and the draft mules. Such has never yet been attempted in our army, and I have recently seen horses passed for U. S. service which were about as fit for military work as a professional shoemaker would have been for a gunner on the U. S. S. *Brooklyn*.

I believe, however, that our chance for the passage of a proper bill will soon arrive. From correspondence with members of Congress I have learned that the failure of the passage of the veterinary bill is not due to want of recognition of the veterinary profession, but it is mostly based on the objection of the members of Congress to creating a new class of officers for which there is no pressing necessity. So we will have to wait for a chance to demonstrate that our services are really needed. Thus far the Spanish-American war has not been lucky for our profession, while it has given a wonderful start to many other branches of the service. Surely, the several dismounted regiments of United States cavalry, and the heroic "rough riders," sung as such already in American poetry, charging "on foot" the hills of Santiago, is glory surrounded by sarcasm. But let us wait for the changing fortunes of war and see if not soon the urgent need of the cavalry horse and the ambulance mule will be demonstrated to those who wish to see it. If so, the war will yet prove that these public animals cannot properly be taken care of by detailed cavalry and infantry officers, nor by the farriers of the troops, as is largely the case at present. I believe that we are nearer the realization of our hopes and the result of our years of labor in this direction than many of us may think.

It is quite interesting at present to mention the personnel of the Spanish veterinary corps. According to the *Berliner Tierärztliche Wochenschrift*, it consists of one first class veterinary inspector (colonel), 2 second class veterinary inspectors (lieutenant-colonels), 9 veterinary majors, 73 veterinary captains, 87 veterinary lieutenants. Of these 235 officers there are one veterinary major, 11 veterinary captains and 64 veterinary lieutenants in Cuba. From the large number of veterinary officers needed in Cuba we must conclude that large bodies of cavalry are operating there. Some of our young cavalry lieutenants with their West Point airs may yet be shocked by turning a veterinary major or captain his prisoner.

OLOF SCHWARZKOPF.

VETERINARIANS AS JUDGES.

LITTLETON, IOWA, July 7, 1898.

Editors American Veterinary Review:

DEAR SIRs:—The advancement that colleges are making, both in research and education, calls for more positive decisions, both from a theoretical and practical standpoint, from the coming graduate. I have chosen a very interesting and valuable subject, though I feel that I am unfit to eliminate any new ideas, but I have been tempted from others as well as from observations, to call attention to the lack of growth in the veterinary profession of thorough and competent judges. We occasionally witness men in the profession giving their opinions as to the soundness of horses, when in reality the animals are no more fit to stand an examination for such than a Scotch terrier is fit for a fox chase. It is a great pity that colleges and other institutions don't give this matter more thought and attention, and try to impress on their students more knowledge of how to examine, and go about it in a professional and systematic manner, thus overcoming the many obstacles and embarrassments that they are prone to in daily practice, by the laity or "quack" who has pointed out some defect or abnormality that the veterinarian has failed to find, and has thus gained more confidence and imparted it to the owner, to think that veterinarians are not fit subjects for judges. I may say, though I am not authentic, that there are few graduates who can be relied on to give a thorough and sound opinion as to conformation and soundness of limb and wind of a horse.

Why is it we see so often in the show ring and other places, men who are supposed to be horsemen, if I may be allowed to use the term, acting in the capacity of expert judges, and if these same gentlemen were asked the question as to the anatomical parts they were examining they no doubt would feel as if they desired some oxygen for relief? Are these gentlemen fit to give a correct authentic opinion as to conformation, soundness, predisposition and transmission, when ignorant of the parts they are examining? Then what is the veterinary profession coming to? I may say a good deal of this humbuggery and matter-of-form business is due to the present veterinarian lacking in his early training before going to college, and during his stay within the walls of the latter. As long as there are so many avenues or loop-holes for infection, so to speak, in the training of the present student, so long will the quack and the laity be called in to give their opinions, both in the show ring

and other public places. A few years ago, when breeding and prices were raging high and fever at boiling point, and every person, from the huckster to the millionaire, was trying to raise a world-beater, it was amusing to hear some speak of well-formed horses if the same were fat and well groomed, or in racing condition, when a glance over your shoulder would have convinced you in a second that the animal hadn't a leg nor foot to stand on, even if the sire was so and so, and the dam so and so. It became quite a common practice for veterinarians to overlook soundness and have their attention drawn to breeding and merits. So long as the animal was fast and well bred, big-headed, long-backed, curby hocked and possibly a spavin or some other exostosis present, they passed their opinion as sound, never realizing the fact that they were being employed to judge conformation and soundness, and not for speed and merit. It is common for veterinarians to have a good point or two run away with their judgment, when a dozen or so of other defects or abnormalities are staring them in the face. It would be much better if they would start out and look for unsoundness and let the good points come to them naturally. They don't need judging.

The question may arise, how can this delicate matter be rectified among veterinarians? if the profession intends to elevate itself in this direction to a higher standard, so as to have recognition from those who have been duped in the past, and also to put aside the would-be horseman (expert judge) and self-made judge. The right spirit will do much towards promoting the growth of better judges in the future, thus bringing the profession up to a higher standard so as to maintain our standing in the eyes of our cousins across the water. We must show our superior ability as veterinarians as judges over the educated people and pretender when called in for an opinion as to soundness, whether we are foreign or American born, or whether we hold diplomas from this side or the other. It is a matter of professional duty, and one that we can't overlook, when our mental faculties are put to task to really find out whether or not we are masters of the situation.

ROBERT ROBB, V.S., M.D.

LIABILITY OF VETERINARY SURGEONS FOR THEIR OPINIONS
UPON SOUNDNESS.

BROOKLYN, July 19, 1898.

Editors American Veterinary Review:

GENTLEMEN:—In your comments in this month's REVIEW,

upon the responsibilities of members of our profession in their relation as examiners of horses for soundness, you say that "malice and prejudice" must be proven before liability is incurred, and that all men familiar with veterinary jurisprudence hold this belief.

Now, from my own knowledge and experience, I hold a diametrically opposite opinion, and I have yet to meet the member of my profession who is influenced by "malice and prejudice" in examining horses for soundness, but I hold that all those familiar with veterinary jurisprudence are alive to the fact that they are legally bound to use all known means to fortify their position; and that, failing to do so, they are legally liable to that extent to the vendor or purchaser. In support of this opinion, allow me to refer you to the *London Veterinary Journal* for June, 1898, at page 439, where the liability of veterinary surgeons in their examination of horses for soundness is discussed at a society's meeting, setting forth one instance where an examiner, pronouncing an animal sound, had to reimburse the purchaser \$500; and another, where the surgeon, also certifying to soundness, had to pay the value of the animal, including railway transportation, and the fees of two other veterinary surgeons, who pronounced the animal unsound; and they were held thus liable, not because of "malice or prejudice" in their decision, but because they omitted to use all the recognized means for detecting defects that did exist when they passed the horses as sound; or, in other words, because their examination was superficial.

These cases are just the reverse of the one under discussion, but the principle, or "veterinary jurisprudence," is identical.

In your July issue of the REVIEW you say that I doubtless have condemned many a horse upon a superficial examination. This I grant you; for when the unsoundness is ocularly demonstrated, a minute examination is unnecessary, and one is then justified; but in the case before us, the animal that was condemned by Dr. Ackerman as being unsound "at both ends," was, the same week, submitted to the inspection of three other veterinary surgeons, each of whom carefully examined the animal, and certified to the same being sound.

I would suggest that this matter of veterinary jurisprudence is of sufficient importance to repay all members of our profession for any time spent in understanding the same, and would not advise any reader of the REVIEW to be carried away with the impression that "malice and prejudice" on their part must

be proven before legal responsibility is sustained, as per your definition of veterinary jurisprudence.

Very truly,

L. McLEAN, M. R. C. V. S.

AN ORIGINAL TREATMENT FOR ATROPHY OF MUSCLES.

BELVIDERE, ILL., July 12, 1898.

Editors American Veterinary Review:

DEAR SIRS:—I wish you would publish in your valuable medium of thought (the REVIEW) this formula, as I never saw it in any of my veterinary journals or text-books. It is for "sweeny," or atrophy of any muscle:

R Argenti nit., grs. x.
Aquæ, ℥ i.

M. Sig. Inject hypodermically over muscle half a drachm every five or six inches; repeat in two or three weeks, or as soon as swelling subsides.

I find this much better than the unsightly setons or blisters.

Yours truly,

F. B. ROWAN.

REVIEW OF BIOLOGY.

PROTECTING ACTION OF THE LIVER AGAINST CARBUNCULAR INFECTION [*By M. Rogers*].—To appreciate the conditions of the struggle between the organism and pathogenous agents in capillaries, the author injected rabbits and guinea pigs, in various parts of the circulatory apparatus, with cultures of anthrax virus. The results vary with the blood-vessel which has given entrance to the culture. Death occurs in from 36 hours to three days after, according to the dose and as the injection is made in the aorta, the femoral artery, peripheric veins or the peripheric end of the carotid. But, when it is made in an intestinal vein, running to the portal vein, animals will live indefinitely. Then the liver plays a protecting part, efficacious and powerful, which is more marked in infections than in intoxications. A toxic dose, double that which would be fatal through the peripheric veins, is unable to kill when introduced in the portal vein. A quantity of anthrax virus, sixty-four times superior to that which kills by the peripheric veins, is completely annihilated by the liver. This figure, already large, may be below reality; because, when animals succumb after inoculation by the portal vein, the question may always be put: Has the entire injected liquid gone through the

liver, or a small part of it passed into the peritoneum and created a centre of local infection, the cause of death?—(*Soc. of Biol.*)

CYSTICERCUS TENUICOLLIS IN THE CARDIAL WALL OF A SHEEP [*By MM. Railliet and Chr. Morot*].—It is quite common to find in the thickness of the cardiac muscle of mammalia, cysticerci whose normal habitation is the connective tissue; such are the *cysticercus cellulosæ* and the *cysticercus bovis*. The *cysticercus tenuicollis*, which ordinarily develops in serous membranes, may, also, go astray in muscles. But Beemson is the only author who mentions its presence in the heart; he claims to have seen it twice in that organ in cattle. At the inspection of a fat and stale ram killed at the slaughter-house of Troyes, a cysticercus was obtained from the superficial coat of the ventricular myocardium, which under microscopic examination proved to be a *cysticercus tenuicollis*. As it has already been observed for this cysticercus, when located in muscles or in parenchymas, the hooks of the parasite were reduced in number and in size.—(*Soc. of Biol.*)

POLYDACTYLIA IN A HORSE [*By Mr. Briot*].—A mustang from South America presents on both forelegs an internal finger, well-developed, smaller than the principal digit, with fetlock and hoof not extending to the ground; the hoof was pared off now and then. The principal digit is normal and free from any deviations in its axis. The radiographic view of the leg shows that the supplementary digit is the second finger; the metacarpal is more developed than in the normal condition; there are two large sesamoids, smaller than those of the principal digit. Cases of polydactylia are more frequent in America than in Europe; by the absence of deformation of the middle finger, they come nearer the ancestral type. Is this fact due to the wild life of the horse, or is it that the American horse is of indigenous origin and of more recent formation than the European horse, and consequently more subject to atavism? The author puts the question without answering it.—(*Soc. of Biol.*)

A CASE OF PSEUDO-TUBERCULOSIS OF FELINE ORIGIN [*By Mr. Galavielle*].—A cat being suspected of rabies, its brain was inoculated into a guinea pig and a rabbit. These two animals died with pseudo-tuberculosis of the spleen in one and of the liver in the other. With the tubercles obtained from them, cultures were made of bacilli, isolated or in rods, which were inoculated to guinea pigs, rabbit, white rat and a cat. In this way, the disease was reproduced under two forms; one

with diffused lesions without tubercles, another with tubercles, according to the dose and the weak or strong condition of the virulency. The cat which had served for the beginning of the experiment had been said by a veterinarian to suffer with inflammation of the liver, spleen and intestines. The same lesions were found in the inoculated cat. Consequently a bacillar tuberculosis can be found in this species analogous to those already described under the name of bacillar pseudo-tuberculosis in guinea pig, mice, rabbit and sheep.—(*Soc. of Biol.*)

OBITUARY.

HENRY S. VANDERHOFF, M. D., V. S.—At Sing Sing, N. Y., on Monday, July 4, 1898, at 9 P. M., this estimable veterinarian closed a long sickness, the prolongation of which had been regarded as miraculous, as he had suffered from serious gastric disease for many years, after becoming so reduced as to cause his death to be imminently expected, but from a wonderful constitution and great will-power he would rally and give hopes of ultimate recovery, when his insatiable pursuer would again prostrate him. He practiced human medicine for a number of years in the Eastern District of Brooklyn, N. Y., but about 1882 entered, and in due time graduated from the Columbia Veterinary College, in New York, locating in Brooklyn, where he afterwards became associated with the Bureau of Animal Industry in its crusade against pleuro-pneumonia, serving as an inspector for some five years. When that work was completed he removed to Sing Sing, where he has resided since, but owing to his malady did not engage in active practice. From his attending physician, who was much interested in the scientific aspect of his case, we have received the following notes: "Cause of death, cicatricial stenosis of pylorus, chronic dilatation, and inflammation of stomach. Occasion of death on July 4, anæmia, prostration from heat, heart failure."

VETERINARY INSTRUMENTS.—Through the advertising pages of the REVIEW the celebrated house of Hauptner, of Berlin, Germany, is seeking American trade among veterinary surgeons. Their catalogue, possibly the most elaborate ever issued by a veterinary instrument firm, contains 300 illustrations and descriptions of instruments, and will be sent to any veterinarian, post free, on demand. Their announcement illustrates Dieckerhoff's trocar for phlebotomy, which is fast supplanting the fleam in Europe. Forwarded in a neat case, post free, for one dollar.

SOCIETY MEETINGS.

UNITED STATES V. M. ASSOCIATION.

As the arrangements for the Omaha meeting near completion it becomes more and more evident that an exceptionally interesting programme is being prepared for those who are so fortunate as to attend. In fact, it would seem that no member of this association or veterinarian practitioner within reach of Omaha can well afford to miss this meeting.

In addition to the regular programme, such as reports of committees, with papers and discussions, additional features of much interest have been added.

Practitioners must certainly look forward to the clinical demonstrations of several major operations with increasing interest, and all who are interested in municipal or local meat inspection, cannot but realize that the discussion of this subject from its several standpoints by members of the profession who have given much study to this subject, and to which will be added an extensive and varied display of the tissues of diseased animals, affords an unusual opportunity for becoming acquainted with the various details of information so important to one who may be called upon to perform the duties of meat inspector.

The arrangements made by the local committee for the entertainment of all who attend, insures that their personal comforts will be looked after, and everything will be done to make everybody have a good time.

The following is an outline of the programme, which will be followed as closely as possible:

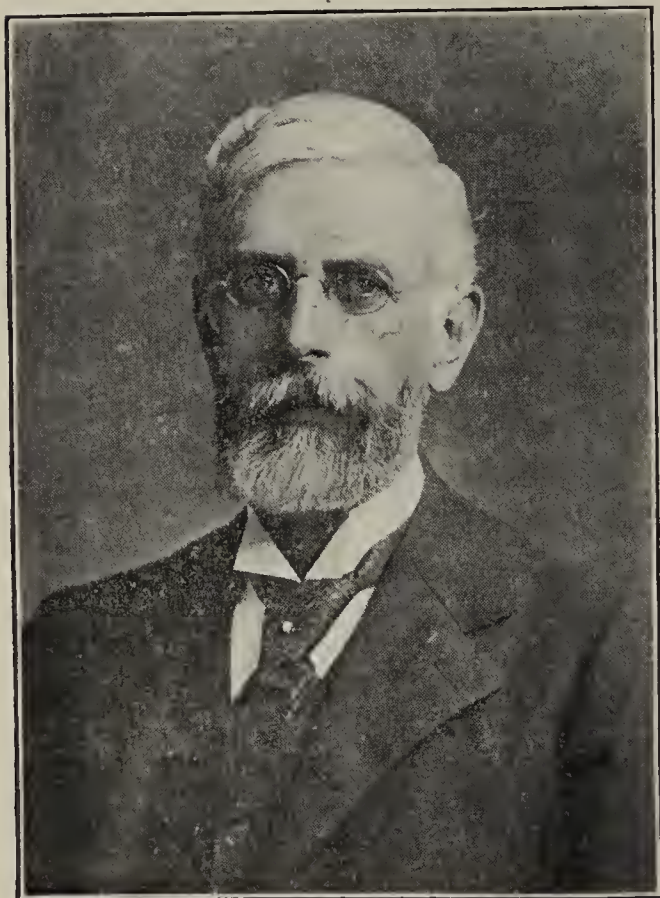
Headquarters.—Millard Hotel.

FIRST DAY.—Tuesday, Sept. 6, 1898.—Clinic, 8 to 9.30 A. M. 10 o'clock, annual meeting convenes. Address of welcome, Hon. Mayor of Omaha. Response, Prof. Roscoe R. Bell, of New York. President's address. Business of the Association. Ladies taken in charge by local committee of ladies, visiting the exposition.

Evening.—8 P. M., Reception by the Nebraska Association.

SECOND DAY.—Clinic, 8 to 9.30 A. M. 10 o'clock, session reconvenes. Business of Association. Discussion of meat inspection. Regular programme. Ladies to visit the cities of Omaha, South Omaha, and Council Bluffs in tally-hos or trolley cars.

Evening.—Ladies' theatre party or other entertainment. Members' and visitors' banquet at the Millard Hotel.



D. E. SALMON,
WASHINGTON, D. C.,
President.

Dr. M. H. Reynolds, St. Anthony Park, Minn., "A Study of the Healing Process in Ovariectomy in Cattle"; illustrations by numerous photographs.

Dr. L. A. Merillat, Chicago, Ill., "Arytenoideraphy,"* a new surgical treatment for roaring, may be demonstrated in clinic."

Dr. H. D. Gill, New York, "Diseases of the Dog."

Dr. W. B. Niles, Ames, Ia., "Anæsthetics and Best Method of Administration"; demonstrated in clinic.

Dr. C. C. Lyford, Minneapolis, Minn., "A Radical Operation for Cure of Contracted Hoofs"; demonstrated in clinic.

* Operation described in this issue under "Reports of Cases."

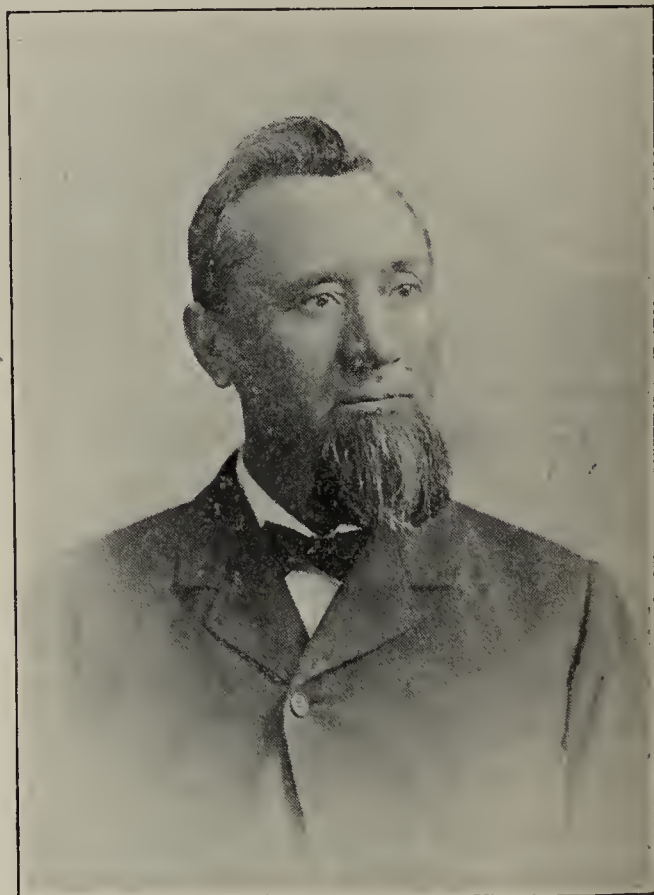
THIRD DAY.—Business of the Association. Continuation of literary programme. Tour of shopping districts for the ladies, or trolley parties if preferred.

Evening.—Meeting of the Experiment Station Veterinary Medical Association.

The following is the list of authors and papers as far as completed:

Dr. Tait S. Butler, Starkville, Miss., "Methods of Confining Animals for Surgical Purposes," with demonstrations in the clinic.

Dr. R. R. Bell, New York, "Acute Indigestion in the Horse."



THOMAS B. RAYNER,
PHILADELPHIA, PA.,
Vice-President Eastern States.



A. T. PETERS,
LINCOLN, NEB.,
Vice-President Western States.

it includes a year's study and the collection of information from all parts of the country upon the subject of rabies and osteoporosis. These subjects were discussed to some extent at the meeting last year at Nashville, and proved to be of such interest and importance that the Committee on Diseases was instructed to make special reports on these topics for the coming meeting.

It is expected that the following members will demonstrate operations in the clinics: W. L. Williams, New York State Veterinary College; John W. Adams, Veterinary Department University of Pennsylvania; C. C. Lyford, Minneapolis,

Dr. S. S. Whitbeck, Decorah, Ia., "Practical Points in Country Practice."

Dr. H. D. Fenimore, Knoxville, Tenn., "Game and Cattle Diseases in Tennessee."

Dr. H. D. Gill, New York, "Further Study of Antitoxins."

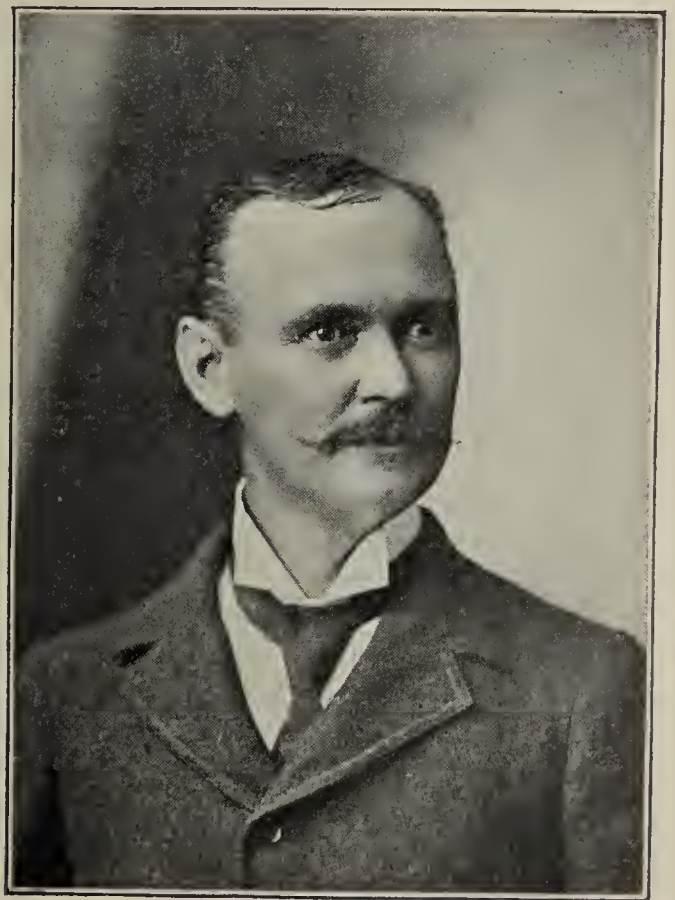
Dr. M. H. Reynolds, St. Anthony Park, Minn., "Control of Hog Cholera, Especially in Minnesota."

Dr. James Law, Cornell University (*title not received*).

Dr. A. J. Anderson, Seward, Neb. (*title not received*).

Dr. Joseph Hughes, Chicago, Ill. (*title not received*).

The report of the Committees on Diseases is one of especial interest to the profession;



W. C. RAYEN,
NASHVILLE, TENN.,
Vice-President Middle Western States.



SESCO STEWART,
KANSAS CITY, KANSAS,
Secretary.

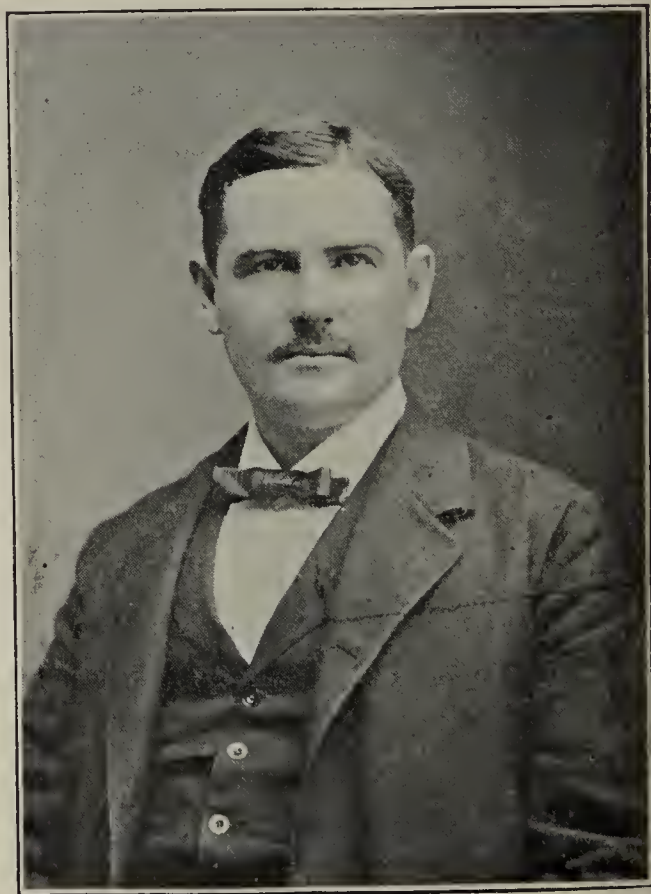
casting and confining for surgical purposes; administration of anæsthetics.

These operations will be performed only on animals requiring such operations for the relief of disease or deformity.

The subject of meat inspection will be discussed from the following standpoints: "Methods of Educating the Public as to the Necessity of Meat Inspection"; "The Necessity for Consolidation of Municipal Slaughter-houses into Large Abattoirs under Municipal Control"; "Slaughter-house Inspection"; "Retail Market Inspection"; "The Disposal of the Flesh of Tuberculous Animals."

Minn.; L. A. Merillat, McKillip Veterinary College; H. D. Gill, New York College of Veterinary Surgeons; Tait S. Butler, Starkville, Miss.; W. B. Niles, Veterinary Department Iowa Agricultural College; Dr. Joseph Hughes, Chicago Veterinary College.

It is expected that the clinic will include the following operations: Docking, pricking, and straightening of tails as done in cities; extraction of teeth and other dental operations; ovariectomy in the mare and other animals; radical operations for contracted hoof; median neurectomy; new operations for the cure of bog spavin;



WM. HERBERT LOWE,
PATERSON, N. J.,
Treasurer.

The discussion will be opened by the following members: Dr. W. Horace Hoskins, Philadelphia, Pa.; Dr. Leonard Pearson, Philadelphia, Pa.; Dr. C. A. Cary, Auburn, Ala.; Dr. C. J. Sihler, Kansas City, Kas.; Dr. Chas. W. Heitzman, New Orleans, La.

The committee in charge of the collection of diseased specimens hope to display these specimens in their fresh or natural state, and have arranged to exhibit full carcasses of sheep and swine and quarters of beef. They hope to display most of the following list of diseases: *Cattle*.—Actinomycosis, tuberculosis, Texas fever, anthrax, bruise, septicæmia, capillary hæmorrhage, leucocythemia, cysticercus bovis, disease of liver, disease of kidney, disease of udder. *Swine*.—Cholera, swine plague, tuberculosis, leucocythemia, cysticercus cellu, abscess, disease of kidney, disease of liver, disease of bowel, disease of lung, disease of skin, disease of uterus, extra-uterine pregnancy. *Sheep*.—Ischemia, emaciation, cysticercus T., disease of liver, disease of lungs, disease of bowel, disease of skin. Any other disease of special interest found will be included in this collection.

The Indiana State Board of Health contemplates sending a delegate to Omaha to hear the discussion on meat inspection. Other States should do likewise.

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RAILROAD FARES.

Excursion rates to Omaha are in force from all points south of the Potomac River and west of Buffalo and Pittsburg, while an excursion rate on the certificate plan has been granted by the Railroad Associations governing the territory east of Buffalo and Pittsburg, to and including the New England States. Persons desiring to avail themselves of the certificate plan as above referred to, will pay full fare going and will be returned at $\frac{1}{3}$ fare provided they secure a certificate from the

agent at the starting point and have it duly countersigned at Omaha by the Secretary and special railroad agent. It is quite probable that excursion rates will be even lower than now offered before our meeting convenes, and members are urged to inquire about such special rates.

OHIO-MICHIGAN ASSOCIATIONS MEETING.

Pursuant to call, a joint session of the veterinarians of Ohio and Michigan convened in a court-room in the Lucas County Court-House, Toledo, Ohio, Monday, July 11. The meeting was called to order at 3 P. M., and organized by selecting Dr. Walter Shaw, of Dayton, Ohio, as Chairman, and Dr. W. H. Gribble, of Elyria, as Secretary.

Chairman Shaw, in a few well-chosen remarks, called attention to the fact that he believed these joint sessions productive of much good, both socially and professionally, and regretted that the attendance was not larger.

The Secretary was instructed to make a roll-call, and found the following present:

Ohio.—Walter Shaw, Dayton; E. H. Shepard, Cleveland; W. E. Wight, Delaware; T. B. Hillock, Columbus; H. Fustow, Norwalk; R. C. Hill, West Alexander; J. E. Taylor, O. J. Carter, J. V. Newton, W. E. McBaine, W. H. McHugh, Roy Davis, Geo. Young, — Cook, of Toledo; Dr. Smith, Bowling Green; H. J. Helwig, Elmore; C. C. Yule, Leipsic; J. H. Blattenburg, Lima; P. Dillahun, Springfield; W. H. Gribble, Elyria; W. B. Washburn, Tiffin.

Michigan.—E. A. A. Grange, Detroit; Geo. Dumphy, Quincy; Dr. Hawkins, Detroit; J. S. Hamilton, Chelsea; Dr. Buchanan, Detroit.

The Chair stated that an address of welcome would be delivered by Mayor Jones, but that he was unavoidably detained, and pending his arrival we would listen to a paper by Prof. E. A. A. Grange, of Detroit, on the subject, "Biological Products Used in Diagnosis and Treatment of Diseases." Of course his paper especially treated of tuberculin, mallein, etc., as a means of diagnosis, and while believing in tuberculin fully, he advised all to go a little slow and not put too much faith in mallein as a diagnosticating agent of glanders. He gave the views both *pro* and *con* of eminent European veterinarians, showing great diversity of opinion, and said he himself had injected five, had killed two, finding no evidence of glanders, and, in fact, no evidence of any specific disease. He is satisfied that anti-toxin is a prophylactic in tetanus, and in specially infected (if I'm allowed the term) districts, could and should be used

before performing surgical operations. As regards hog cholera, a large amount of experimenting in different parts of the United States is in progress, with good prospects of a product being produced that would cause immunity for six to ten months.

A general debate followed this paper, which was exceptionally interesting, especially as regards tetanus, cases being cited wherein animals from heat or nervous shock have exhibited all the symptoms of so-called tetanus, and in ten or twelve hours have been perfectly well, which would certainly be impossible if all cases of tetanus were of microbean origin.

Mayor Jones, of Toledo, was now introduced, and gave us a pleasant as well as instructive little talk, calling especial attention to the fact that veterinarians should never forget to be humanitarians—should practice this as well as preach it. Of course, he extolled the beauties, grandeur and business greatness of the city of Toledo, extending to us a cordial welcome.

Dr. Hawkins, of Detroit, Mich., followed the Mayor by an answering speech in the name of this joint session; he put special stress on the fact that Toledo recognized no veterinary surgeon on her Board of Health, and thought the Mayor in his official capacity could assist materially in improving this condition.

The regular programme had arranged for a banquet Tuesday night, but as many thought it best to have it the first night, as some might go home, it was decided to put the question to vote, which was decided in preference of the latter.

Dr. Newton moved to adjourn this meeting until 9 A. M. Tuesday and that now we go in a body to the electric cars and from thence to Lake View Park. After being duly supported and put to vote the Chair declared the motion carried.

The ride from the city to Lake View Park is about five miles and a delightful view, passing the magnificent residences of Toledo's wealthy citizens. The park itself being at the junction of the river with the lake was pleasantly cool considering the thermometer was about 90° F. in the shade.

The banquet can be better imagined than described, it was simply *par excellence*, and those not present missed a treat. After attending the performance at the theatre we wended our way back to the city and to our beds. There were present several of the wives of members, but we failed from lack of gallantry to procure their names, and we offer them an apology. Before separating for the night it was decided to meet at the

Jefferson House at 8 A. M., when carriages would be in waiting to show us the city.

Tuesday, July 12.—Members and wives met at Jefferson House at the appointed hour, when we entered carriages and were taken a good ride around and about the city, reconvening at the Court House at 10 A. M., with Dr. W. Shaw in the chair. A communication was read severely commenting upon an advertisement appearing in the AMERICAN VETERINARY REVIEW of "Red Ball Stock Food," wherein it reads: "It prolongs the treatment of acute indigestion and other diseases * * * enabling the practitioner to secure adequate credit for the cure," a principle in opposition to the feelings of all honest veterinarians and an advertisement not in accord with the views of a veterinarian's patrons.

Dr. E. H. Shepard, of Cleveland, now read an able paper on "Acute Indigestion"; * a time-worn subject, but ever apparently new, as was plainly shown in the very lengthy and general discussion which followed its reading.

Dr. J. H. Blattenburg gave a clinical report of an operation for roaring and its results.

Dr. Hawkins gave a very interesting report of a case of bilateral paralysis, with almost complete recovery.

Adjournment was now had until 2 P. M.

Afternoon Session.—Session called to order by Dr. Shaw, who stated he must soon leave, and asked to be relieved as chairman.

Dr. Newton moved and Dr. Wight seconded a motion that Dr. Hawkins act as Chairman. Carried.

Dr. Dumphy (who is State Veterinarian of Michigan) gave us a history of his experience in the use of tuberculin as a diagnostic agent. Gave history of a case wherein tuberculosis was feared and a diagnosis asked for; tuberculin did not react, while physical appearance would indicate the disease. The cow was nevertheless destroyed, when pus-sacks and sinuses were found about the rumen, liver, diaphragm and heart. The liver adhered to peritoneum, the peritoneum to diaphragm, the diaphragm to pleura, and so on upward and forward to the heart, where a nail without any head was found.

The debate following led into a discussion of meat and milk inspection, which the Chair stopped by calling on Dr. Gribble to read a paper on that subject.† A general discussion

* Published elsewhere in this issue.

† Will be published in September REVIEW.

followed the reading of this paper, when Dr. Shepard moved and Dr. Washburn seconded a motion that the Secretary be instructed to have 1000 copies of this paper printed and distributed to such veterinary surgeons who asked for them. Carried.

Dr. Hawkins now left and Dr. Wight was called to the chair.

A general discussion now followed, on almost all the diseases known in veterinary practice, and almost every member present desired some information in the treatment of parturient apoplexy and azoturia. This general discussion continued until evening, when it came time to adjourn.

Dr. Newton moved and Dr. Washburn seconded that a vote of thanks be given the readers of essays, and those that reported cases and also Mayor Jones. Carried.

Dr. Gribble moved, Dr. Shepard seconded, that a vote of thanks be tendered the veterinarians of Toledo for their kind entertainment during our meeting here. Carried.

The next session of the Ohio Association will be held in Columbus during January, 1899.

Adjourned.

The Secretary regrets very much not having had a stenographer, as the discussions not reported contained far more valuable and practical information than the papers read, the papers simply furnishing the subjects.

WM. H. GRIBBLE, D. V. S., *Secretary*.

NOTES OF THE DUAL MEETING.

Dr. Hillock's son was very fond of spring chicken-leg until he discovered they belonged to frogs, when his fondness disappeared.

Dr. Wight is said to have gone without his dinner so as to do justice to the banquet.

Dr. Buchanan was the ladies' man of the crowd.

The Lucas County Court House is an ideal place to meet in; and everyone seemed to try to make the other feel at home.

Dr. Fulstow was much interested in the high-kicking ladies, locating himself on one of the front seats of the theatre.

Some of the old men thought they were marksmen until one of the boys got hold of a gun.

Dr. Taylor is a lover of azoturia, having to go out to see cases between acts.

After adjournment Dr. Washburn was still seeking information on milk fever.

Dr. Gribble only just missed his train, but he had to sit and

wait four hours just the same ; but there were others. Moral : don't stop on the way.

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular meeting of the association was held at the Windsor House, Belfast, July 13, at 7.30 P. M. President West in the chair. A fair number of members responded to the roll-call. The minutes of the previous meeting were read and accepted.

Dr. I. L. Salley read a paper upon "Tetanus," which was freely discussed.

The report of the New Hampshire Cattle Commissioners, in the F. B. Shedd case at Northfield, was read and the conclusions of the Board criticised. We believe that the tuberculin test is the only reliable test for tuberculosis ; that when several tests are made within the year, the first test is the only reliable one. That apparently healthy cows which react by the test are often just as dangerous as some that show the disease by physical examination. And so we believe that the cows released and returned to Mr. Shedd's herd may be just as dangerous as those that were destroyed.

Voted to adjourn and meet at Waterville in October.

I. L. SALLEY, D. V. S., *Sec'y.*

NEWS AND ITEMS.

READ the programme of the Omaha Convention, and ask yourself if you can afford to stay at home.

A HORSE will eat in a year nine times his own weight, a cow nine times, an ox six times and a sheep six times.

"EQUINE PATHOLOGY," by Dr. H. D. Hanson, now in course of publication, is announced for delivery by the middle of September.

FRANK R. HANSON, D. V. S., of New York, reported ill with pleurisy in the JUNE REVIEW, has recovered and is spending a convalescent vacation in the mountains.

DR. E. M. BECKLEY, Meriden, Conn., very narrowly escaped being killed by the kick of a horse on June 1st. After a month's entire disability he returned to his duties.

SECRETARY MORRIS, of the New York State Veterinary Medical Society, was in New York, August 1st, making arrange-

ments for the forthcoming meeting of that organization. Valuable papers are being secured for it.

DR. JOHN ROBERTSON, formerly veterinarian to Second U. S. Cavalry, who recently was commissioned as Second Lieutenant Sixth U. S. Infantry, was seriously, though not dangerously wounded in engagement near Santiago, Cuba, recently.

PROF. JAMES L. ROBERTSON, of New York, known and loved by the profession throughout the country, is in better health than for a long time. He has taken Drs. Eugene Burget and W. S. Ortgies in partnership and jointly they will open a hospital in Ninth Avenue, near Thirteenth Street.

"DOPING" RACE-HORSES, although severely penalized by the racing association in their rules, is said to be on the increase. Such "sport" and such treatment of horses should cease, and the officers of jockey clubs should be held accountable to the association if permitted on their tracks.

WALTER L. BELL, D. V. S., of Brooklyn, New York, who recently enlisted in Troop C and has been stationed at Camp Alger, Virginia, is at his home ill with typhoid fever. He is a general favorite with his officers and comrades and much concern has been felt for his condition, though when the REVIEW went to press he was considered a safe convalescent.

AT the next meeting of the New York State Veterinary Medical Society nominations will be made for a successor to Dr. Huidekoper on the State Board of Veterinary Medical Examiners. A rule has been adopted by the Regents prohibiting teachers in any veterinary school in the State from serving upon such board.

DR. E. H. SHEPARD, of Cleveland, Ohio, recommends pepsin in doses of two to four drachms to horses suffering from acute indigestion, and condemns opiates in the same condition. His views in full on this subject were embodied in a paper presented to the joint meeting of the Ohio and Michigan Associations in July.

A FARMER read the following in an agricultural journal: "A side window in a stable makes a horse's eyes weak on that side; a window in front makes his eyes weak by the glare; a window behind makes him squint-eyed, and a stable without windows makes him blind." Now that farmer wants to know what effect a window without a stable has on a horse's eyes.—(*Trotter and Pacer.*)

A BAD CASE.—The Iowa Health Bulletin publishes, among

many similar specimens of letters written by "doctors of medicine" in support of applications for pensions, the following: "—, February 20, 1897,—Sur: I surtify I treated the said sujer fum 18888 to Datc——foarmerly his stumik tub was jined to his nervious sistem, but now it air rotted of, cosing grate expectoring and hard of breth. Your Obt. servent. ——— M. D."—(*Globe-Democrat.*)

J. PAYNE LOWE, D. V. S., was reappointed veterinary inspector of the Passaic (N. J.) Board of Health for the term of three years at its meeting held in June. All cattle kept within the city limits as well as the stables have to pass his inspection. Meat and milk inspections are also made by the doctor. It is only a matter of time when every municipality in the country will have its veterinary inspector. Great interest therefore should be given the discussion upon the subject at Omaha next month.

MODERN WAR SURGERY.—The war in Cuba has so far resulted in far fewer casualties than did engagements of like importance in our civil war. The Spaniards are not good marksmen on land or shore. What is quite as important is the fact that among those wounded there will be far fewer deaths than then occurred. Medical discoveries of antiseptic methods of dressing wounds are responsible for this to a very great degree. Injuries which 35 years ago would have surely been fatal are now quickly recovering. And yet this is the hot season in a tropical climate, when without antiseptic treatment almost any kind of an injury would be sure to set up blood poisoning and be certainly fatal.—(*American Horse Breeder.*)

THE LAUGH'ON THE VETERINARIAN.—About two weeks ago Liveryman George Bailey purchased a horse from a Stamford dealer. A few days afterward the animal displayed symptoms of sickness, and a well-known veterinary surgeon was called. The case was different from any brought to the veterinary's notice, and as the animal showed no signs of recovery under his treatment, he admitted after several visits that the case baffled his medical knowledge. The matter was fully explained to the satisfaction of every one, excepting, probably, the veterinary, when Mr. Bailey became the owner of another horse Friday night, and the funny part of it all is that the foal is not a horse but a mule. It is said that the next time the medical horseman visits Darien he will become hoarse from asking the boys, "What'll you have?"—(*Connecticut Exchange.*)

EXPORT TRADE.—The war has had no apparent effect upon the export trade in horses except to increase prices. Up to the first of June the statistics at Washington show that for the previous eleven months we exported 46,707 horses at a total value of \$5,620,150. If the exportations in July are an average we shall have an exportation for the year of over \$6,000,000. For the previous period the figures were 35,925 horses at a value of \$4,332,381. This is a highly satisfactory showing. When to this is added the large purchases by the Government of horses which will go to Cuba and Porto Rico which will never come back to this market, it is safe to say that the day of returning prosperity for the breeders is at hand. So far as Kentucky is concerned the surplus common stock is practically all gone and with it out of the way there must be an advance in price of all the grades. Farmers will make no mistake next season in breeding their best mares to good sires. But if they want to breed remuneratively they should breed to well-bred trotting sires of good size and handsome individuality. If they do not get a fast trotter they are likely to get a handsome carriage horse or roadster and in either case it will pay them.—(*Spirit of the Times.*)

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AMERICAN VETERINARY REVIEW.

SEPTEMBER, 1898.

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EDITORIAL.

EUROPEAN CHRONICLES.

SALINE TRANSFUSIONS IN VETERINARY MEDICINE.—Washing of the blood by subcutaneous injections of saline solutions is a process of therapeutics which has received yet but little attention in veterinary medicine, and which by the recent publications of Mr. Bimes, of the Toulouse Veterinary School, and of Mr. Bissauge, has become for the moment the question of the order of the day. In a series of long articles published in the *Revue Veterinaire*, the former has given the history of this therapeutical process, as it was first applied in human medicine (origin of the method, its object, the means put into use, the physiological effects, its therapeutic applications). It is this last paragraph which deserves the attention of veterinarians. Lock-jaw, infectious pneumonia, typhoid fever, septic metritis have been treated by either venous or subcutaneous injections of saline solutions, on some occasions renewed, and in several instances the treatment was followed by recovery.

Mr. Bissauge has followed the publication of Mr. Bimes by a record of several instances where subcutaneous injections were used against various forms of hæmorrhages (epistaxis, hæmorrhage of castration, post-partum hæmorrhage), tetanus, parturient apoplexy, infectious pneumonia, distemper of dogs; and incomplete, perhaps, as the results may seem to be, it has proved sufficiently successful in his hands to justify

him that properly applied this treatment will sometimes "save the life of animals considered as positively condemned and in cases where the veterinarian would think himself powerless." For him the indications for saline injections are all cases where vascular hypotension is present: anæmia, hæmorrhage, surgical infections, intoxications of the blood, and, certainly, good results may be looked for in the cases alluded to above and in which he has tried them. The principal contra-indications are diseases of the kidneys and some lesions of the heart.

The application of saline solutions has been carried out already by Prof. Labat, of Toulouse, who has resorted to venous injections (in the jugular). The technic of the operation is quite simple. The canula of a trocar (3 millimeters in diameter) is attached to a funnel. These are thoroughly disinfected and heated to 38° C. The funnel being filled with the saline solution, the canula of the trocar is introduced into the vein already open and the contents poured slowly into the circulation. The funnel is kept full so as to avoid the introduction of air.

The subcutaneous method is perhaps easier and less dangerous. A rubber tube, about 1 metre 50 cent. long, secured by one end on the stop-cock of the bottom of a recipient, able to contain 3 litres of solution, and having at the other free end a fine needle, constitutes the required instrument. The recipient filled, the stop-cock is opened, a little of the fluid is allowed to escape and the needle thrust quite deeply in the subcutaneous tissue.

The solution recommended by Bissauge is made of 8 grammes of chloride of sodium in one litre of water; it ought to have the even temperature of the body, or be a little higher; and the quantity to inject has been one litre in dogs, from 3 to 5 in bovines and in horses.

The large swelling resulting from the injection generally subsides in 40 or 50 minutes.

*
* * *

ETIOLOGY AND PATHOGENY OF SPAVIN.—How different would be the general idea of many if they knew that the word spavin, which to their minds is merely an exostosis, a bunch of

the antero-internal part of the hock, means the long series of pathological lesions which veterinarians are more apt to understand under the general classification of hock diseases. And, yet, while most veterinarians realize the true condition of affairs and appreciate the fact of the many alterations that can be found under the general denomination of spavin, there remains some doubt as to the manner in which the lesions develop.

The various opinions of pathologists can be divided into two groups: first, those that admit that the morbid process progresses from inwards outwards, from the articular surfaces or central parts of the bones towards the periphery, and, second, those which accept the opposite progress, viz., from the periphery towards the centre. Among the former must be named Joly, for whom the pathological process means successively: *first*, a dry arthritis of the lower tarsal articulations (the spavin-arthritis); *second*, ankylosis of the inflamed articular surfaces (spavin-ankylosis); *third*, a localized exostosis on the inner side of the base of the hock (spavin-exostosis); *fourth*, extension of the process beyond the lower tarsal articulation with irritation of the circumference of the superior tarso-metatarsal and tarsal joints. For Prof. Eberlein the process differs. The first lesion is an osteoporosis, rarifying osteitis, involving the cuniforms and metatarsals, followed by a condensing osteitis, with chondritis and proliferation of cartilaginous cells and followed sooner or later by ankylosis. Sometimes the inflammation passes directly from the bone to the periosteum of the small tarsal bones and gives rise to the development of exostosis on the inferior parts of the hock.

The interest promoted by such diversity of opinion was stimulated recently at the Société Centrale by a very interesting paper presented by the learned professor of Alfort, Mr. Barrier, who among his conclusions says that spavin consists essentially in a chronic, dry arthritis, generally ankylosing and diffforming, which starts in the articulations of the infero-internal part of the hock and has a tendency to spread to the superior from below upwards and from inwards outwards.

The progress of the morbid process is as follows: (1) a sprain (effort) of the desmous apparatus of the surface or depth of the small tarsal joints; (2) an osteitis and osteo-periostitis, first rarifying, then condensing, of the bony pieces affected or of those surrounding, which receive too heavy percussion in locomotion; (3) an ankylosis at the periphery, sometimes not difformans, but ordinarily granulating and encircling; (4) a dry arthritis, ending in solid central ankylosis or progressive osteoporous difformation with eburnation of the diseased articular surfaces.

For Mr. Barrier, spavin is not hereditary. It is the bad formation of the hocks which predispose to it.

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CONGRESS OF TUBERCULOSIS.—As I announced in a previous number of the REVIEW, the fourth Congress for the Study of Tuberculosis was held in Paris from the 27th of July to the 2d of August. The attendance was very large and the veterinary profession well represented, not only from France, but from Denmark, Germany, Switzerland, Italy and even America. From that country Dr. Schweinitz, of Washington, was to present papers relating to the matters in discussion. He had made all his preparations to leave New York by the doomed French steamer *La Bourgogne*, when at the last moment he was informed that he could not be spared from his work at the Bureau of Animal Industry. A few days later, the noble steamer met with the terrible accident which put so many in mourning. Dr. Schweinitz had a narrow escape.

The Congress was presided over by Prof. E. Nocard, who filled the duties of the position with great success and who carried the honors of applause at the various communications that he presented. Prof. Bang, Prof. Arloing, as veterinarians, drew much attention on matters of importance and interest in a veterinary point of view. Out of the seven special secretaries appointed to record the doings of the Congress, four of them were veterinarians.

For veterinary importance the Congress has been a great success.

The transactions of the Congress will be issued at a short date, with all the papers that were presented. I will extract from it those that are of special interest for the veterinarian and present them to the readers of the REVIEW as soon as possible. At the same time I give you the principal resolutions passed at the last meeting which relate to veterinary medicine :

The Congress, considering that the constant progress of tuberculosis of bovines threatens seriously public wealth and health, that contagion is the only truly efficacious cause of its progress, insists upon the urgent necessity of legislative action ordering :

(*a*) Separation of diseased from healthy animals ; (*b*) Interdiction of sale of diseased animals, for any other objects but slaughtering ; (*c*) Inspection of dairies, producing milk for public alimentation, and immediate killing of all cows affected with tuberculous mammitis ; (*d*) Sterilization or at least pasteurization of the milk for the making of butter and cheese ; (*e*) Generalization of a service of inspection of meat, on a plan more or less similar to that which has existed in Belgium for several years.

A. L.

THE REVIEW AND THE OMAHA MEETING.

Many REVIEW readers are not members of the U. S. V. M. A.; many who are both members of the Association and readers of this journal will be unable to make the journey and engage in the deliberations of the convention. They are none the less interested in the proceedings and jealous of the success of the meeting. They will anxiously await the news of its personnel and profit by the papers and discussions which take place. They will, however, miss the pleasure of the trip, the genial fellowship of the members from all points of the national compass, and the splendid programme of entertainment which we published in the August issue. They will not enjoy the intellectual programme quite so well as though they were upon the

ground and enabled to participate in it. But the REVIEW means to have them get as much benefit from the convention of 1898 as it is possible under the circumstances; and to that end it will publish in its October edition a full and graphic *résumé* of the three days' meeting, with as many of the papers read as it is possible in that number.

We have made the assertion that the forthcoming meeting is to eclipse all predecessors. Watch the prediction.

A FEW THOUGHTS TO PONDER.

Do YOU KNOW that only about one-fourth of the veterinarians of America read the veterinary periodicals?

YOU DO KNOW that it is imperatively necessary that they should, if they are to accompany the advance guard of the profession.

YOU may say that the magazines are not as great as they should be. But

YOU know that they are as great as they can be with their present limited financial support.

Do YOU wish them better?

If so, YOU induce one fellow-practitioner who does not read them to send three dollars for one year's subscription.

YOU will be only doing YOUR DUTY, and will be aiding in a practical manner to build up the profession of your choice.

Your brother veterinarian will thank you for what you did before the year has expired.

PARTURIENT APOPLEXY is a disease the pathology of which is about as well understood as is that of azoturia, and almost every practitioner has his own ideas as to its therapy. Not a few have settled down to a belief that severe cases die and mild cases recover. Any investigator who can furnish a reasonable explanation of its etiology and a treatment which will cure 46 out of 50 is entitled to the most respectful attention and conscientious emulation. Veterinarian Schmidt, of Denmark, has electrified Europe with his discovery, and practitioners are re-

porting great success by the adoption of his methods. We begin the publication this month of his scientific contribution to veterinary literature upon the subject, for which our readers are indebted to Prof. W. L. Williams, whose untiring energy has induced him to translate it for the benefit of the profession of this country.

ORIGINAL ARTICLES.

THE MICROBE OF PLEURO-PNEUMONIA.

BY MM. NOCARD AND ROUX.

With the collaboration of *MM. Borel, Salimbeni and Dujardin-Beaumetz.*

Translated by A. LIAUTARD.

(Continued from page 240.)

APPENDIX.

FIRST EXPERIMENT.—May 16, 1896, at 8 A. M., a Flemish cow, suffering with acute pleuro-pneumonia, is killed. She had been sent to Alfort for clinical studies. At the autopsy are found: subacute hepatization of almost the entire right lung, the anterior lobe and the superior border only are free from disease. No effusion in the pleural sac. Dry pleurisy on the whole hepatized surface. An enormous quantity of yellowish and limpid serosity fills the perilobular and subpleural lymphatic sacs. In some points, the pleura is raised by true lakes of serosity; with difficulty 20 c.c. of it are collected *pure*, and kept in 50 sterilized closed glass tubes.

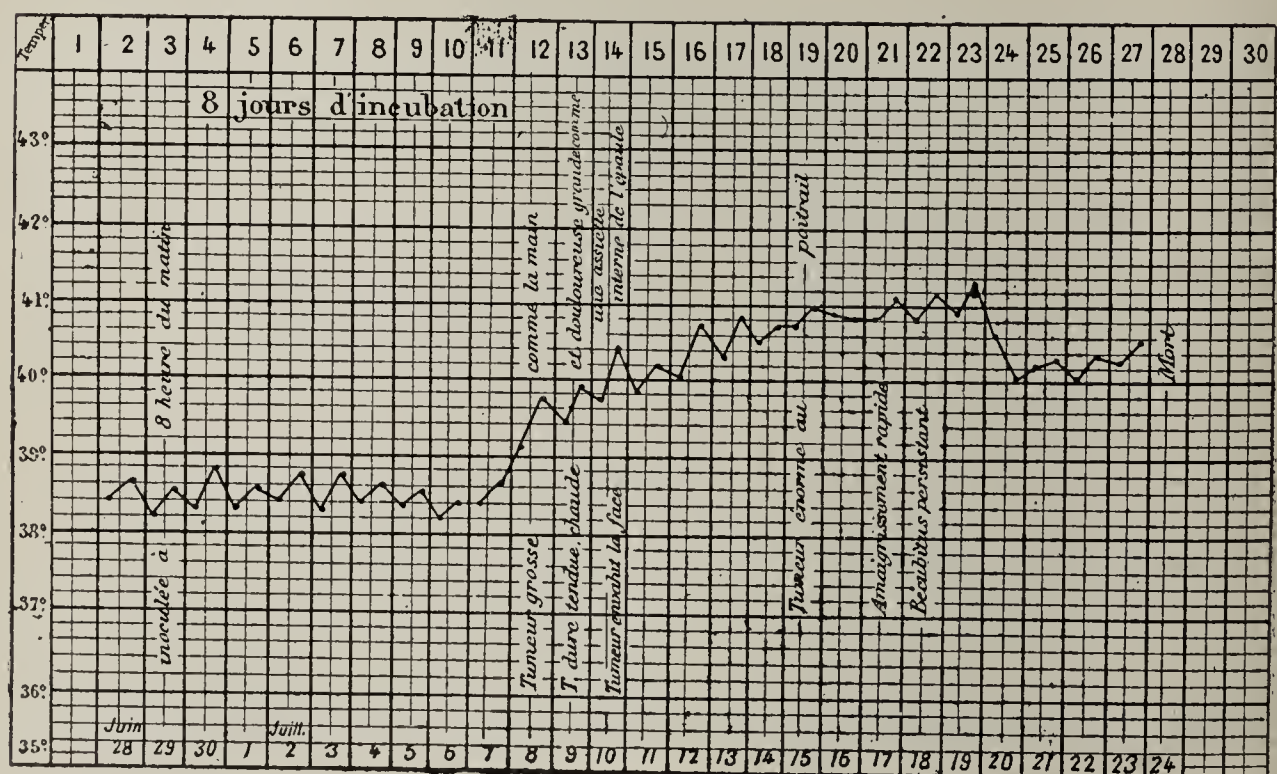
June 2, two collodion bags are prepared and filled with peptone bouillon inoculated with a trace of the serosity collected May 16 (a small drop for 10 c.c. of bouillon). The serosity which remained on the glass pipette with which this inoculation was made was inoculated on Agar and in bouillon, these inoculated tubes were placed in the thermostat. They remained sterile. Both collodion bags, hermetically closed, are placed in the peritoneum of two rabbits. These rabbits are killed June 27; they are thin, but still vigorous. The collodion bags are

intact ; they contain an opal liquid, a little suspicious, slightly albuminous, in which numerous small refringent motile bodies are moving ; they are so small that they can be distinguished only by a high magnifying power (about 2000 diameters) and yet their form cannot be made out.

June 29, 8 A. M., we inoculate a Breton heifer (No. 1) by subcutaneous injection, back of the left shoulder, with five drops of the opal liquid taken on 27th from one of the collodion bags. These five drops were first diluted in 2 c.c. of sterilized bouillon.

Up to July 7th nothing abnormal is observed on the inoculated cow ; she is gay, has good appetite ; her temperature remains in the neighborhood of 38.5° as before the injection. July 8th, the temperature is 39.1° in the morning, 39.7° in the evening ; from that date it keeps rising slowly and gradually to reach 41.3° on July 19th.

No. 1.—Breton heifer, 10 months old, inoculated June 29, 1896, with 5 drops of pleuro-pneumonic culture in collodion bag.



July 7, there was a small swelling at the point of injection ; on a surface as broad as the palm of the hand, the skin seems to be raised, it has lost its suppleness, is a little warm and sore.

These characteristics become rapidly more marked; the swelling increases in all directions; on July 10, it measures 25 centimeters in diameter; is hard, tense and very painful, the animal strikes with its horn or feet at the hand that feels it. The outlines of the swelling are well marked by a projecting border.

The enlargement spreads rapidly forward, backward and downward; it reaches under the shoulder, which it pushes away from the trunk and almost renders it motionless; it extends under the abdomen as far as the udder; and on July 16, it forms on the dewlap an œdematous tumor, warm, tense and painful, as big as the head. Little by little the arm and the forearm become engorged and the slightest pressure produces great pain, expressed by the animal with a dull and prolonged groan. The appetite, which has been good up to July 12, diminishes little by little; from the 18th the animal refuses all food.

July 19, the animal is cast on an operating table; after deep cauterization of the skin, a large quantity of *pure* limpid serosity, amber colored, is collected in sterilized glass tubes, where it flows so profusely as to moisten the cork of cotton; after the operation, a stream of serosity runs from each puncture in great quantities.

The following days, the animal remains stretched on her bed, unable to rise or even to stand up; she dies during the night of the 23d to the 24th.

At the post-mortem, an enormous œdematous infiltration is observed, occupying the entire right side and all the lower part of the body, from the maxillary space to the udder. At the dewlap, it forms a mass larger than the head of the animal; the right anterior leg is raised, pushed away from the trunk and infiltrated in its whole length; the arm and forearm are twice their size, notwithstanding the resistance of their enveloping aponeuroses; the cellular tissue is invaded as far as the bones. Every cut with the scalpel is followed by the running of a stream of serosity. The connective tissue looks gelatinous; its meshes are distended with an enormous quantity of limpid, amber serosity. On a level with the shoulder and arm, the infil-

tration of the connective tissue has extended to the interfascicular tissue, in such a way that, on section, the muscle has the aspect of being divided in sections, it seems sclerous; only the connective tissue between its bundles of muscle are very œdematous; between them, the tissue proper of the muscle has a pale washed color, and is soft in its consistency. This condition exists also in the intercostals; the serous infiltration has spread into the sub-pleural connective tissue, where it forms a thick and fluctuating cushion. The same exists also in the cellular tissue of the anterior mediastinum. The pleural sac contains about two liters of yellow serosity, somewhat reddish. Both pulmonary lobes are healthy; there is not the slightest interstitial or sub-pleural infiltration.

* * *

One might suppose that the result of this experiment is because it was only a simple dilution of the virus which had been injected; this is not admissible. The original bouillon was inoculated with one drop of sub-pleural serosity, say 1-20 of a c.c. for 10 c.c. of bouillon; the dilution then was at 1-200—5 drops from the liquid of the bag, diluted to 1-200, or 1 cubic centimeter of a dilution to 1-800; the inoculation has been made forty days after the collection of the virus—that is, at a date where ordinarily the serosity has lost its virulency; let us observe, besides, that for twenty days the serosity, diluted to 1-200, has stood a temperature close to $+40^{\circ}$ (in the peritoneum of the rabbit), a condition most unfavorable to the preservation of virulence; let us also say, that the incubation has been very short and the progress of the infection very rapid, and we will conclude that the results observed are due to the cultivated microbe, and not to a simple dilution of the pleuro-pneumonic virus.

The following experiments will remove all doubts:

SECOND SERIES OF EXPERIMENTS.—July 19, 1896, a great quantity of *pure* serosity, which is in the connective tissue of the left costal region of heifer No. 1, is collected.

August 1, three collodion bags receive: one, fresh bouillon

not inoculated (to be used as *witness*); a second, the same bouillon, to which has been added 1-10 of the serosity collected on July 19; the third, a dilution to 1-1000 of the same serosity. The two tubes of inoculated bouillon, which has been used to fill the collodion bags, are put in observation; they remain sterile. The first two collodion bags are placed in the peritoneum of a rabbit (b, 116); the third one in the peritoneum of another rabbit (c, 135).

The two rabbits are killed August 17. The two bags of rabbit b, 116 are intact; the bag *witness* (bouillon not inoculated) is absolutely limpid; the other is very cloudy; the liquid is swarmed by the small refringent mobile points observed before. The bag of rabbit c, 135 contains an opal liquid, less cloudy than the other; it also contains a great number of microbes.

With the culture of rabbit b, 116 two other dilutions are made and put in collodion bags; one of these (dilution to 1-100) is placed in the peritoneum of a rabbit (i, 41); the other (dilution to 1-1000) in the peritoneum of another rabbit (i, 79).

These two rabbits are killed September 1; the contents of both sacs is cloudy and full of the refringent points already described. Sept. 2 the liquid from the bag of rabbit i, 79 is inoculated to a fresh Breton cow (No. 2); the other is used for two other bags which are inserted in the peritoneum of two rabbits: No. 48 (dilution to 1-200), and No. 92 (dilution to 1-500).

Rabbit No. 92 dies Sept. 9, cachectic, without apparent visceral lesions; the bag is intact, the liquid is cloudy and contains nothing else than the ordinary refringent points. A dilution to 1-60 is made with it and put in two bags which are placed in the peritoneum of a rabbit, No. A, 357. Let us say now that, at the post-mortem of this rabbit, both bags were found broken, and that that series of passages of cultures was thus interrupted.

Rabbit 48 is killed Sept. 18; he is very thin; the collodion bag is intact, and contains a very cloudy fluid, full of the ordi-

nary refringent points; two new dilutions (to 1-200) are made with it, placed in new bags, and inserted in the peritoneum of rabbits B, 833 and B, 831. The balance of the dilution is placed in the thermostat and remains sterile.

Rabbit B, 833 dies Sept. 29, in the morning, without apparent cause, cachectic; the bag is intact, the liquid very opal, contains only the ordinary small refringent points; it is placed in sealed tubes and kept until the death of rabbit B, 831.

This animal is killed Oct. 6. He is very lean, but still strong. The bag is intact, it contains very little of a very cloudy liquid, with the small ordinary refringent points, coccobacilli analogous to that of chicken cholera, though smaller, are found quite numerous; there are no cells; undoubtedly they are due to an impurity introduced in the bag at the time it was filled and closed.

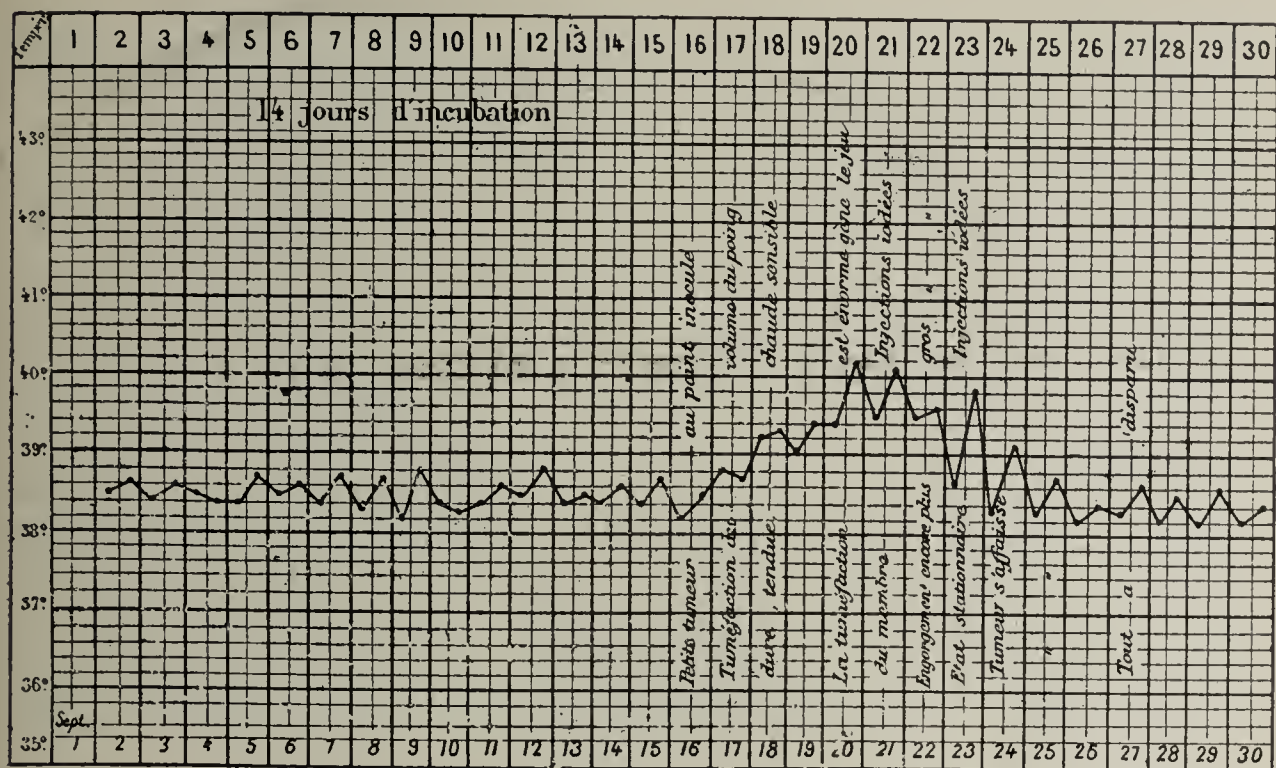
October 8, 1 c.c. of the culture of rabbit B, 833 is injected under the skin of a cow (No. 3) back of the shoulder.

Here is the *résumé* of the observations of the two cows inoculated in this series of experiments:

Cow No. 2 (has received, July 7, 1 c.c. of a second culture in bag, representing a dilution to 1-10000 of the serosity obtained from the heifer No. 2, July 19, 1896).

Up to September 15, this cow presents nothing abnormal; 16th, at the point of inoculation, is observed a hard, sore tumefaction, as big as a Mandarin orange; temperature still normal; 17th, swelling is larger; tense, warm, very painful. 18, it measures more than 20 centim. in diameter; temperature raised to 39.3°. 20th, the swelling, very tense, has reached the shoulder, whose motions are stiffened; temperature is 40.2°; animal is dull and refuses part of her ration; injections of iodine water are made in the œdematous engorgement surrounding the tumor. Up to the 23d, the condition remains the same, always serious; injections of iodine are continued. From the 24th, the tumor began to diminish, the temperature subsides, the appetite returns. The 27th, everything is normal.

No. 2.—Cow, 6 years old, inoculated Sept. 2, 1896, with 10 drops of culture in bag of rabbit 1,79 (dilution 1-10,000.)



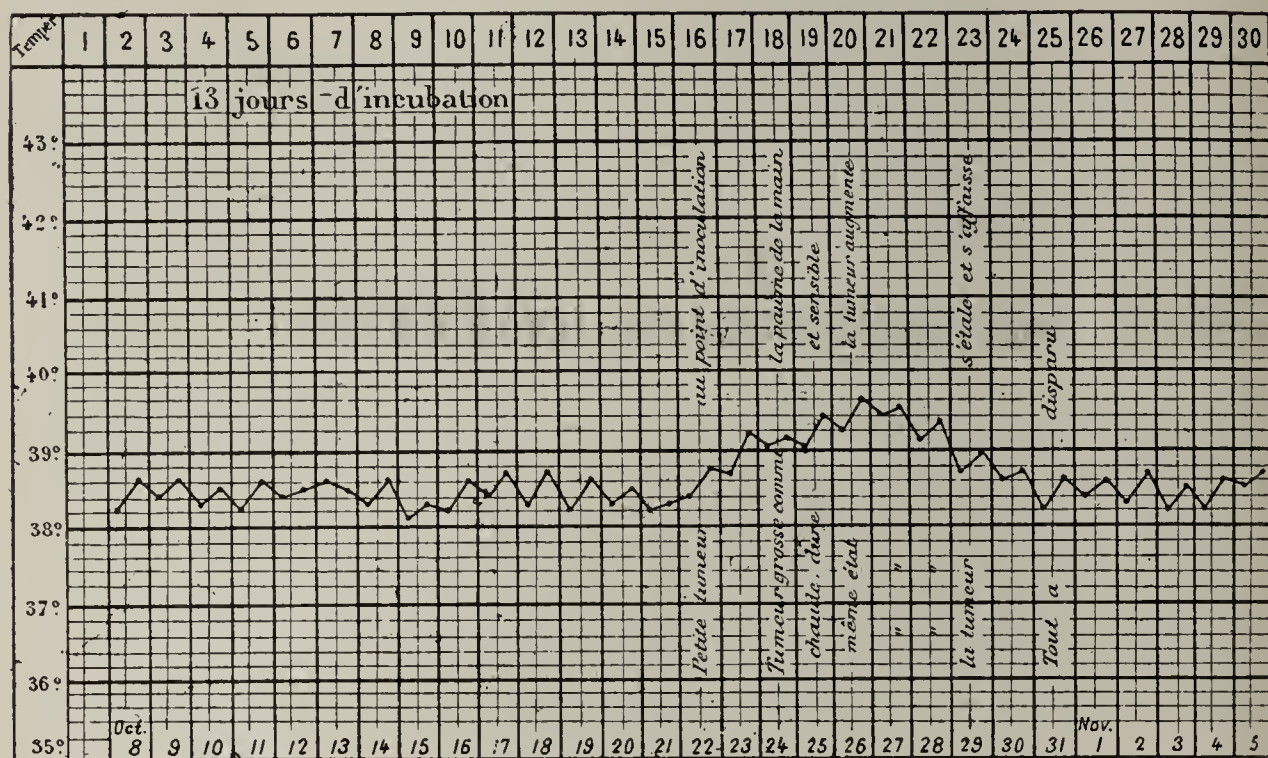
Cow No. 3, received October 8th, 1 c.c. of a fifth culture in bag, representing a dilution to 1-40,000,000 of the serosity collected July 19.

This animal presented nothing abnormal up to October 21; 22d, there was at the point of inoculation, a hard, painful swelling, as big as a nut; 23d, the nodosity is surrounded by a quite large, soft œdema, the temperature is 39.2° ; 24th, the swelling is as wide as the palm of the hand, tense, warm and painful; 26th, the swelling, always very tender, has increased, temperature 39.6° ; this condition remains stationary during the following days, then all diminishes, is resorbed, the temperature returns to normal; 31st, all is normal.

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If the accidents observed in cows No. 2 and 3, after the inoculation of cultures in collodion bags, were truly of pleuro-pneumonic nature, these animals must have become immunized against the natural disease and against the inoculation of the virulent solution. The proof was necessary. The following experiment confirms it:

No. 3.—Cow, 5 years old, inoculated Oct. 8, 1896, with 1 c.c. of bag culture of rabbit B 833 (dilution 1-40,000,000.)

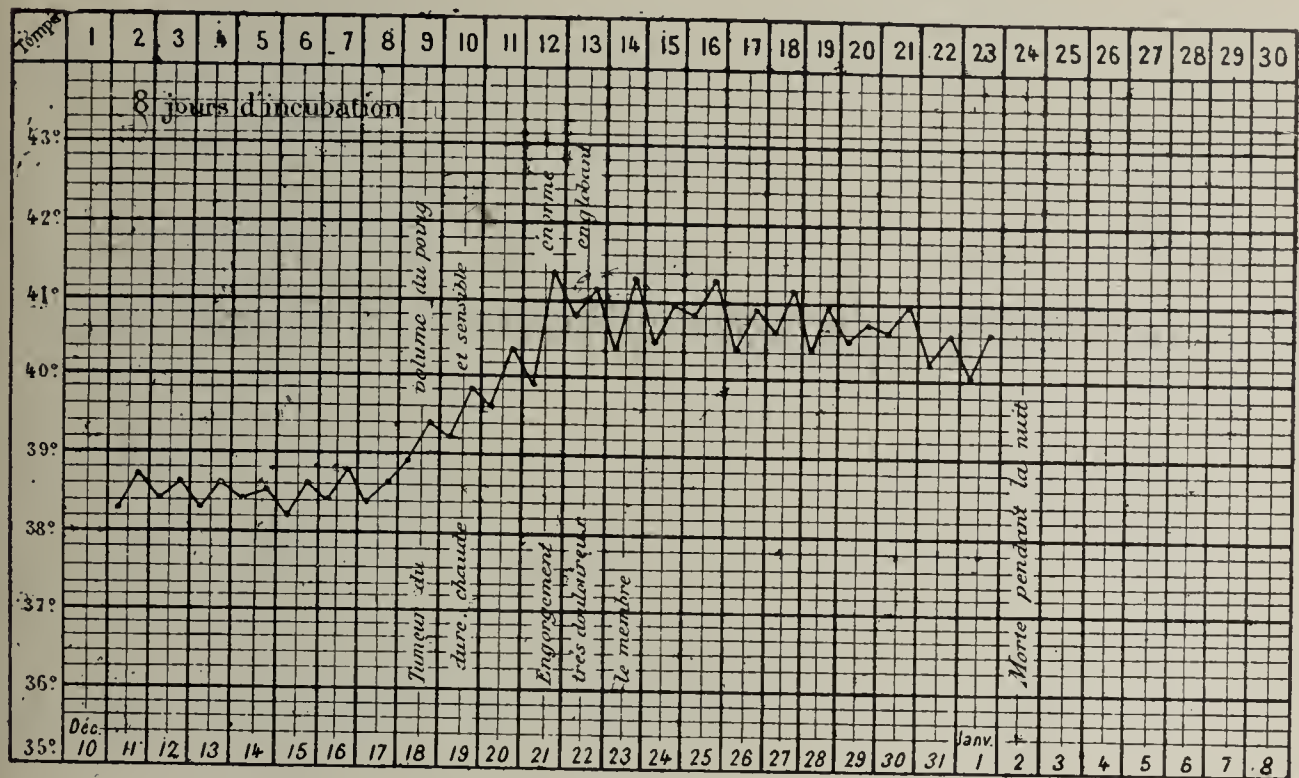


December 11, 1896, two lungs of pleuro-pneumonic bovine were sent to Alfort: the right lobe in its posterior half is the seat of a recent hepatization; the tissue is gorged with yellowish and limpid serosity; some cubic centimeters of it are collected (pure) which will serve to inoculate by injection under the skin, back of the shoulder, cows No. 2 and 3; each receives twenty drops of serosity, and cow No. 4 (Normandy, 18 months old, with actinomycosis of the jaw), which will be *witness*, receives only 10 drops of serosity.

While both cows, Nos. 2 and 3, have resisted the injection without presenting anything abnormal, no swelling, nor even temporary fever, the *witness* died the 22d day with an enormous swelling containing more than 10 litres of serosity. The incubation has been only eight days; December 18th, the fever started and the oedematous swelling at the point of inoculation made its appearance.

THIRD SERIES OF EXPERIMENTS.—March 9, 1897, sub-pleural serosity is collected pure from a cow killed. On the 12th, two collodion bags are prepared and filled with a diluted solution of serosity in peptone bouillon to the 1-1000. One bag is

No. 4.—Normandy Cow, 18 months (actinomycosis), inoculated Dec. 11, 1896, with 10 drops of pulmonary serosity.



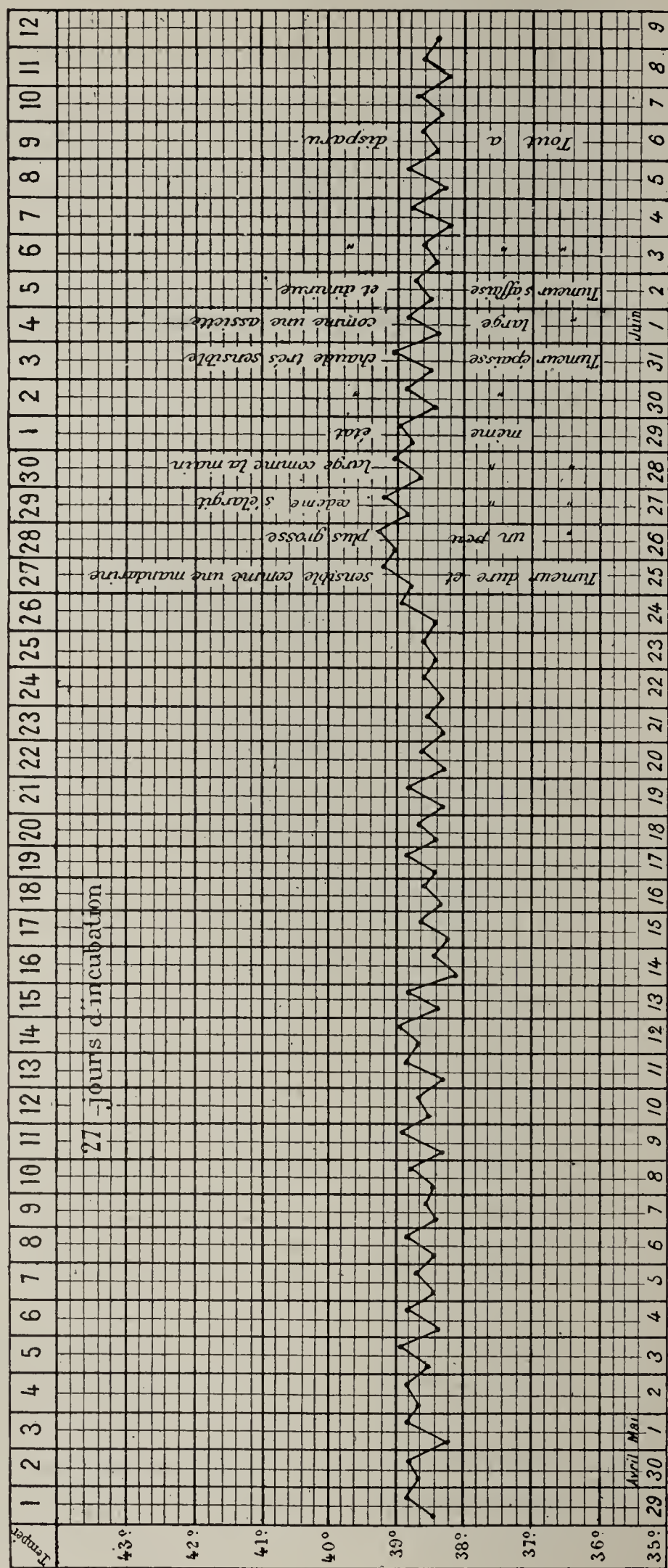
placed in the peritoneum of a rabbit, the other in that of a guinea pig. April 4th, both animals are killed: the bag of the guinea pig is full of transparent limpid liquid; in the rabbit, very lean, the bag is found very flask and containing an opal fluid where the ordinary refringent small bodies are swarming. With the culture from the rabbit, bouillon is inoculated and dilutions to the 1-100 and the 1-1000 are put in two bags which are inserted in the peritoneum of two new rabbits. April 28th, both rabbits are killed; culture has taken place in both bags, identical to the preceding one and very rich. April 29th, 10 drops of the dilution to the 1-1000 are injected under the skin, back of the left shoulder, to a Breton cow, 8 years old (cow No. 5).

Here is the *résumé* of the observation:

Up to May 24th, everything remains normal; no fever, no local lesion.

May 25th (twenty-seven days after the inoculation), a tumor appears, as big as a Mandarin orange, hard, painful, at the point of inoculation; this tumor spreads little by little. May 31st, it is as big as a soup plate, extends under the shoulder, stiffens the movements of the animal, remains always very painful, the cow

No. 5.—Cow, 8 years old, inoculated April 29, 1897, with 10 drops of a second culture in bags
(dilution 1-1,000,000).



strikes at the hand that touches it. From this date the swelling diminishes rapidly. June 6th all has disappeared.

Reinoculated Oct. 7, 1897, with one cubic centimeter of pleuro-pneumonic serosity collected on the 3d from a lung, seat of an acute lesion; this cow has presented no fever, nor local lesion at the point of inoculation. She was certainly vaccinated by her treatment in the month of May.

FOURTH SERIES OF EXPERIMENTS. — January 19, 1898, a lung with lesions of acute pleuro-pneumonia, allows the collection of several glass pipettes of *pure* limpid serosity from the sub-pleural lymphatic sacs. After having, by inoculation on agar and in bouillon, tested the serosity to be sure that it was free from ordinary bacteria, bags of collodion and of reed cane were prepared and filled with a dilution to 1-200. On Jan. 29th these bags were inserted in the peritoneum of two rabbits and of two guinea pigs. Each subject received one bag of each kind.

February 10th the four animals were killed.

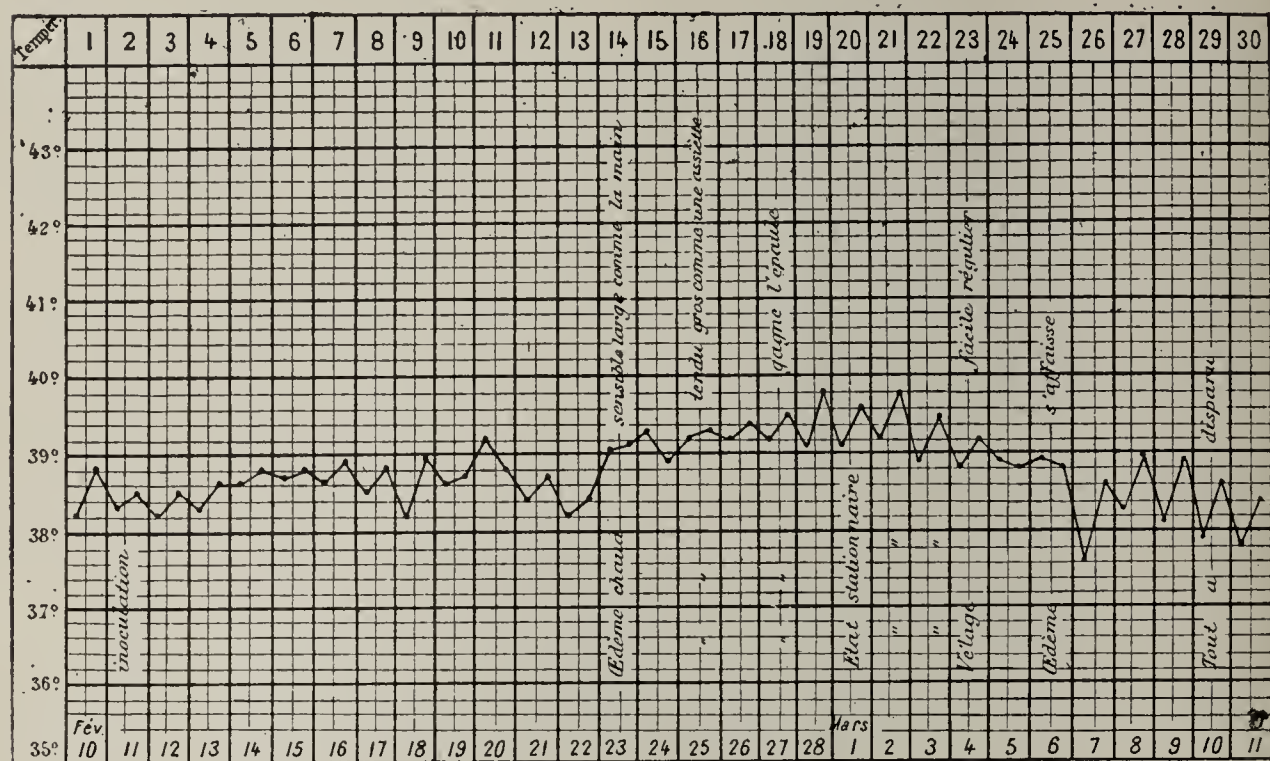
The bags of the guinea pigs have given no culture; they contain a limpid and transparent liquid.

On the contrary, the bags of the rabbits have all cultivated; the liquid that they contain is cloudy, opal, free of the motile and refringent small points. In the collodion bags the culture is less abundant, it is very rich in the reed cane collodion; the liquid is milky.

February 11th at 9 A. M. a cow (No. 6) is inoculated under the skin, back of the left shoulder, with five drops of reed cane bag culture, diluted in 2 c.c. of sterilized bouillon.

Up to the 22d nothing abnormal; on that day there is at the point of inoculation a little sensibility on pressure, nothing else; the temperature is 38.5° . On the 23d, swelling a little hot and painful, as big as the palm of the hand. The temperature goes above 39° . On the 25th there is a hard swelling, tense, warm, very painful, the size of a plate; the following days, the swelling engages under the shoulder, the animal resists all manipulations; the humor remains stationary to March 2d, then gradually and slowly diminishes and disappears.

No. 6.—Cow, 4 years old, in calf, inoculated Feb. 11, 1898, with 5 drops of culture in reed-cane bag (11 days of incubation).



March 10th, the temperature, which had risen to 39.8°, goes down from March 3d. On the 4th the cow delivered normally and since has not had the slightest indisposition.

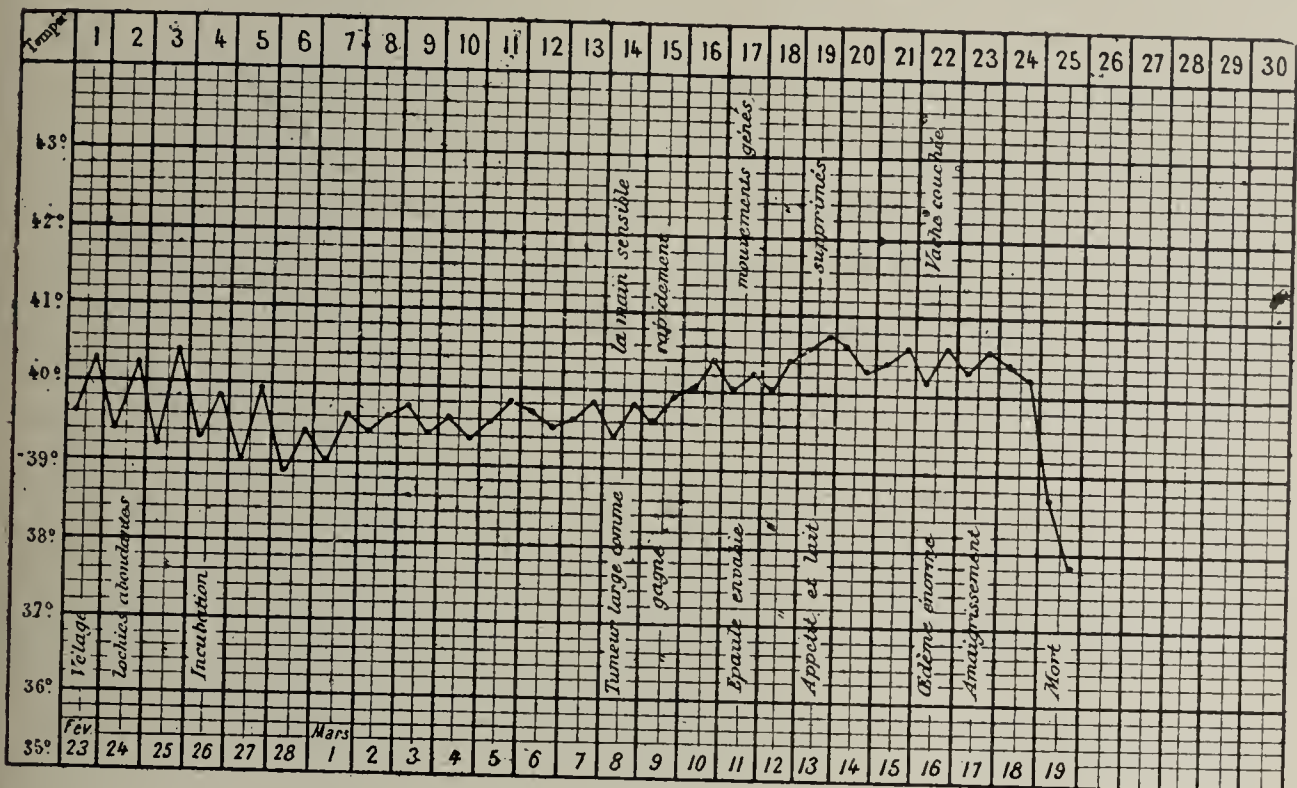
On February 10th several tubes of bouillon peptone serum, had been inoculated with a ball of the culture in reed-cane bag; Martin bouillon, added with a little beef or rabbit serum, gave, alone, a culture, the fluid assuming little by little the opalescent aspect of the liquid of the bags; successive cultures were made, and on February 26th a cow, No. 7, three years old, freshly calved, was inoculated back of the right shoulder with 10 drops of a fifth culture *in vitro*.

Here is the *résumé* of the observation:

Calving and delivery occurred February 23d; after conditions somewhat regular; however, for several days the cow passed large quantities of bloody grayish discharge, slightly purulent; then everything went normal. The calf, separated from its mother, was fed from the pail; the cow gave four or five litres of milk a day.

Nothing to notice up to March 8th; then appears a swelling the size of the hand, hot, hard, painful; this increases

No. 7.—Cow, 3 years old, calved Feb. 23, inoculated Feb. 26, 1898, with 10 drops of a fifth culture, *in vitro* (10 days incubation).



rapidly during the following days, it extends under the shoulder, pushes it from the trunk and stiffens the leg. On the 11th the temperature is about 40°C ., and remains at this point until death. It reaches 40.7°C . on March 13th. At the same time the swelling increases in all directions, to the dewlap, where it forms a tumor as big as a child's head, under the abdomen, where it forms an œdematous swelling as thick as the arm, and back to the udder; the milky secretion has diminished, the appetite is gone, the animal loses flesh, rumination remains, but is slow and irregular.

March 17th, swelling is enormous, the animal carries no more weight on the left anterior leg, the arm and forearm is largely swollen, any movement is impossible.

March 18th, the animal is stretched on the bedding, unable to rise. She dies on the 19th, towards 2 o'clock P. M., with hypothermia (37.8°).

Post-mortem.—In removing the skin an enormous quantity of citrine and transparent serosity escapes. The subcutaneous tissue is the seat of a large infiltration which in some points is more than 10 centimeters thick; the exudation occupies all the

inferior face of the body, from the neck to the udder ; it goes up the trachea in the jugular groove, descends the forearm, inside as well as outside the aponeurosis, dissecting the muscles further down than the knee. There exists a little serosity in the pleural and pericardial cavities, but the lungs and all the viscera are absolutely sound.

March 19 a three-year-old Breton cow (No. 8) is inoculated with 1 c. c. of a tenth culture (*in vitro*) of the microbe of pleuro-pneumonia in bouillon Martin-serum.

This observation will be published later on.

PARTURIENT PARESIS.

(THE SO-CALLED CALVING-FEVER, OR PARTURIENT APOPLEXY.)

STUDIES AND INVESTIGATIONS INTO ITS CAUSE AND HANDLING.

BY J. SCHMIDT, VETERINARIAN, KOLDING, DENMARK.

*Translated for the American Veterinary Review by W. L. WILLIAMS,
New York State Veterinary College.*

The writings which exist in our literature upon the so-called calving-fever indicate that both scientific investigators and practitioners have long worked assiduously to properly elucidate this affection. It may well be asserted, however, that the so-called calving-fever is one of the most enigmatical, and hence interesting, diseases of our domestic animals.

Aside from the fact that this malady has aroused a special interest in its scientific aspect, we have also to deal with a very serious affection, especially in valuable dairy establishments, in which it annually claims many victims from among the choicest milk cows, and which through the ever-increasing intensity of agricultural development attains from year to year a greater extension.

The disease has not for this reason been at all neglected, either from the standpoint of the agriculturist or the veterinarian. All the more earnest and scientific work has been de-

voted to it. The results, however, have been uniformly indifferent.

Formerly there were ordinarily distinguished several forms of the malady. The reason for this existed partly in the various grades of the disease, partly in certain complications and also in the confusion of this with other diseases, especially with metritis (septicæmia puerperalis) and with persistent decubitis after parturition. In a like manner we are to explain the great variety of symptoms described.

Accordingly it has become the custom to designate in a more restricted sense as calving-fever or parturient paresis only the so-called paralytic form of calving-fever with its characteristic nervous symptoms.

The symptoms of calving-fever are now well known. Though these may vary to so great a degree in different individuals that, *e. g.*, the temperature may vary from 35° to 41° C. (95° to 105.8° F.) yet it is ordinarily easy to diagnose the disease. On the other hand, the cause of the malady remains yet an unexplained riddle, although much earnest thought has been expended upon its solution; so long as the etiology is not sufficiently known, the therapeutics must be pre-eminently experimental. Certainly these experiments have rendered no immediate value. But the negative results of therapeutics, and accurate observations on the development of the disease, its symptoms, and its course at various times has furnished a certain basis for criticism of the various hypotheses announced. And since these hypotheses have mostly, in the course of time, proven themselves untenable, it has become necessary to consider and investigate other possibilities.

I have rested my own conclusions upon the basis of general experience; *that the disease notably occurs chiefly in well nourished and very profuse milking cows, cows which have easily given birth to the calf, very seldom, however, after difficult parturition or following an abortion; that, further, it is observed chiefly at the most vigorous age in life and at the age of greatest milk production, and almost never in primiparæ, as well as com-*

paratively seldom in cows of the beef breeds, and seldom in cows in bad environments.

Concurrently I have attempted to draw parallels between parturient apoplexy and similar symptoms whose causes are less enigmatical.

Among the various recognized hypotheses in the cause of parturient paresis which have been announced from time to time, two have attained a certain noteworthiness in the last two decades. I will confine myself therefore chiefly to the consideration and criticism of these two. The one is that suggested by Franck,* according to which the disease called eclampsia by the author should have its basic etiology in a disturbance of the circulation, an elevated blood-pressure in the aorta, having its origin in a too rapid contraction of the uterus after birth. From this should ensue: cerebral congestion, cerebral oedema and finally cerebral anaemia with unconsciousness and paralysis.

This view won, at the time, many adherents, and though the majority of veterinarians have now abandoned it, it is still shared by a considerable number.

The second hypothesis is based upon the belief of the genesis of a toxic substance in the womb. This is the most generally accepted view at present, and, although numerous objections have been interposed, yet no conclusive evidence of its untenability has been adduced. It was already proposed by Stockfleth† in 1870, and later in 1884 upon a somewhat different basis by Schmidt-Muhlheim.‡ The latter authors agreed with Franck's hypothesis that the affection had its genesis in a too rapid uterine contraction whereby the lochia in the uterus was shut in and aeration prevented, so that some of the débris undergoing a certain decomposition produced ptomaines, which through their resorption into the blood produced analogous symptoms to those observed in man after the ingestion of poison sausage.

A too rapid contraction of the uterus which forms the basis of the said hypotheses of both Franck and Schmidt-Mulheim, occurs with relative frequency after easy deliveries, and since parturient paresis likewise occurs chiefly after such births, the possibility is strongly suggested that a certain connection exists between these relations.

Here, however, is presented the first weak point of both

* *Thierartzliche Geburtshilfe*, 1876.

† *Tidsskrift for Veterinarer*, I. R. Bd., 18, S. 338.

‡ *Deutsche Zeitschrift für Thiermedizin und Vergleichende Pathologie*, 1884, Bd. II, S. 68.

hypotheses. If it be true that so essential a bond exists between a too rapid uterine contraction and parturient paresis, then there must be such antecedent conditions to each case of the disease. This is not, however, the case. *The os uteri is as a rule still partly open* if the disease occurs during the first 24 hours after labor. It can also be demonstrated that the uterine contraction is fully as slight as is usually the case from this standpoint in sound cows.

To the contrary, it is not infrequently less contracted than in health. By means of manual exploration of the genital organs of a great number of patients, in which the development of parturient paresis occurred after widely varying duration of time (hours and days) I came to the conviction that the power of uterine contraction is generally normal until the cause of the disease begins to insinuate itself, but that the contractility of the womb then ceases or is decreased, because its muscular tissue like other muscular groups, is paralyzed as soon as the disease has begun. If the disease develops a few hours after birth then the os is found regularly open, while if the cow has remained sound for a day or two after parturition, it is frequently found almost closed. Patients are not seldom met with which have had no normal appetite for food or drink from the time of parturition till the disease first makes itself evident one or two days later by symptoms of paralysis; in these patients it is always found that the uterine contractility is diminished. It can, by these symptoms alone, almost be determined, even when the history is wanting, if a cow suffering from parturient paresis had developed the primary stages of the malady immediately after calf-birth. I have observed these relations for a number of years and could therefore cite many cases in support of it.

I assume, though, that it will suffice to refer to the case reports which follow later, in which observations are included regarding the state of contractility of the womb.

Besides we find now and then—Franck freely admits: very rarely—cases in which the afterbirth has not yet been expelled, when they have come under treatment for parturient paralysis.

In these cases the afterbirth is almost always very readily detached. So it has been at least with most of the cases which have fallen under my charge.

This is strong evidence that no powerful contraction of the womb had become established, since otherwise the feebly attached placenta would have been expelled by the normal action of the uterus. Stockfleth* says also in harmony with this, that in cows attacked by milk-fever the contraction of the uterus is wanting.

Hereby the basis of both hypotheses is destroyed. The rapid contraction of the uterus can neither cause, nor influence the cause of, the disease; on the contrary, this enfeebled contractility is itself a result of the disease.

According to Franck's hypothesis immediately after parturition there should occur conditions which favor extreme blood pressure in the aorta. Is this really true?

If labor begins and the uterus as well as the muscular parietes of the abdomen contract, the blood must to some degree be carried from these to other portions of the body. The blood pressure must always then be greatest in the aorta, since the cardiac contractions expend their energy directly upon the blood stream within the aorta; the blood pressure in other parts of the body must decrease in proportion to the distance from the heart. During the birth pangs, as well as during other moments of impediment to the free passage of blood through various parts of the body, there must plainly be an increased arterial blood pressure; after the cessation of the labor pains, however, the increased pressure must immediately cease.

If, then, the birth act is completed, there occur permanent changes in the circulatory conditions, the great vacuum left in the uterus by the birth of the foetus becomes at once somewhat smaller, in part through the atmospheric pressure from without, partly through a mechanical contraction of the uterus brought about by the elasticity of the uterine tissues; as far as permitted by the placenta and remaining placental fluids and blood, the space becomes filled with atmospheric air. The capillary network of the foetal placenta is in this way early subjected to a certain pressure, which also contributes to the prevention of a profuse hæmorrhage from the thin walled capillary vessels here and there ruptured during the birth throes. Shortly after birth the after pains also

* *Tidsskrift for Veterinær*, I. R. Bd. 18, S. 382.

supervene, the physiological contraction of the uterus, which as is well known are dependent upon the vigor of the animal and other conditions, and may therefore be more or less powerful. The capillary network shrinks with the maternal placenta and the womb can consequently not take up the same quantity of blood as during the time of advanced pregnancy.

If now there was no other place for this excess of blood from the uterus, then the arterial blood pressure would become notably stronger immediately after birth, and according to Franck's hypothesis this would especially be seen in those cases where the uterine contractions are very vigorous.

But already some time prior to birth, in the last period of pregnancy, there occurs a gradually increasing swelling of the udder and thereby an increased flow of blood to it. This is in consequence of increased functional activity in the organ. After parturition, the increased vascularity of the gland is further stimulated by the sucking of the calf and by milking, consequently mechanical causes also exert an influence upon the vascular activity and contribute to the increase of the milk secretion. This begins, it is true, almost always prior to parturition, but only to a small degree in comparison with the secretion after calving; for after parturition there can be more milk withdrawn several times daily than the quantity which the mamnæ have secreted in several days before birth.

It is therefore very doubtful if the augmented blood supply required by the udder after birth, is materially less than that quantity of blood which the uterus demanded during the later stages of pregnancy. A direct measure and a direct comparison are not readily attainable; for this purpose one needs know the volume of the blood stream which goes to the uterus and to the udder before and after parturition; but indirectly we may arrive at a trustworthy conclusion, since the nutrition of the foetus and the secretion of milk each draws its material from the blood, in turn the blood secures its nutritive elements from the alimentary tract—that is, from the ingested food.

As the nutrition of the foetus and the production of milk each draws its nutriment from the blood, so the blood in turn secures its nutritive elements from the digestive organs, or rather from the food elements ingested by the mother. The nutritive elements in the food give, therefore, a standard of measurement of what can be drawn from the blood, as well in pregnancy as during lactation.

If now we inquire, if the pregnant cow requires more or less food than the fresh milk cow, which under our present state of development must produce economically a sufficient quantity of milk, each agriculturist can say to us that the former requires less.

It follows then that not so much is withdrawn from the blood on account of the nutrition and growth of the foetus as during lactation in the first period after birth. It is also readily understood that the calf, after birth, through its increase in weight, and its movements, gradually fixes greater nutritive demands upon the mother than the foetus did just prior to birth. The activity of the udder is, however, clearly more than sufficient to meet this additional demand. There must consequently be more nutritive material excreted in the milk, in a different form and of different composition, of course, than the calf used in the foetal period, and since the activity of the udder is naturally a continuation of the uterine function, one is warranted in drawing the conclusion that this functional activity of the udder is proof of its vascular activity as well, and that therefore a greater blood flow goes to the udder after birth than to the womb before.

The heavy demand made upon the blood by the abruptly increased lactation after birth must inevitably result in a much greater blood flow to the udder, after, than before birth, and always the greater the more important the milk secretion is, hence the greatest in good milk cows. Even if it follows, should we adhere to Franck's conclusion, that the blood pressure increases after birth in the aorta and thence to the peripheral parts of the body, this pressure must, however, be smallest where the blood stream finds an overflow in the udder, that is, in good milk cows, which also are the ones, according to Franck, most frequently stricken. Even if there can be nothing more interposed against the theory of an increased blood pressure in the aorta as a connecting link between a too abrupt contraction of the uterus and the cerebral anæmia, these considerations alone should carry sufficient weight to render the Franck hypothesis untenable.

It is a peculiar circumstance which may well contribute to the doubtfulness of the correctness of the hypothesis that even those practitioners who are committed to the theory that an excessive aortic blood pressure exists, yet in handling the affection rely chiefly upon those remedies which elevate the arterial blood pressure. Also they are almost as united in their exclusion of phlebotomy, which in all cases reduces the arterial blood pressure for a short time—according to Albu,* for one-half to four hours.

It is therefore improbable that vascular disturbances constitute the active cause of parturient apoplexy. If, however, the parturient paresis is once established, then it constantly plays an important rôle in the course of the affection and the pressure

* *Berl. Klin. Wochenschrift.* 1896, Nr. 43.

of the arterial blood stream is then undoubtedly changed. *It is not, however, increased, but on the contrary becomes markedly lessened.* But the etiology is quite otherwise than the circulatory changes which accompany parturition. The cause is in part a paralysis of the cardiac muscular tissue. The chief symptom of the malady is paralysis. In extreme grades of the disease, the heart often becomes paralyzed to such a degree that its impulse against the chest walls can scarcely be recognized at all. In consequence of the depressed cardiac action and the diminished arterial blood pressure, cerebral anæmia very naturally supervenes because the blood stream for the reasons named becomes slower, especially at the peripheral parts.

The enfeebled condition of the heart and the depressed arterial blood pressure explains also the fact that the peripheral parts, especially the horns, ears and legs, as well as the body surface, is frequently found to be very cold. At times the epidermis is even shriveled. The fæces in the posterior part of the rectum are often desiccated, the œdema which exists in the udder vanishes rapidly. Some fatal endings have been noted immediately after phlebotomy. In many cases albuminuria exists. There might occur here the apparent possibility of attributing the desiccation of the peripheral parts of the body as well as the posterior part of the rectum rather to a failure of the secretion of moisture than of the absorption of it.

When, however, it so frequently occurs after an attack of milk fever that fæces of the normal consistence and humidity are found at a distance of about two feet forward within the rectum, and in the hinder parts of which only dry balls and frequently only dry crusts exist, which adhere to the mucous membrane, so one must come to the conclusion that just prior to their passage into the most posterior part of the rectum the dry pellets and incrustations were normal in consistence and moisture, but became dried up through the absorption of moisture.

It has been time and again noted by various observers* that a mammary œdema very evident at the beginning of

* Miekdahl; *Tidsskrift for Veterinärer*. Bd. 21 S, 288.

milk fever, quickly vanishes; since then no evidence can be adduced of deficient secretion in such cases, but only of diminished blood pressure and an increased absorption, the force of the belief is much strengthened that it is also an increased absorption, which is so much in evidence in the rectum in calving-fever.

In addition to this it is noted in various other affections that resorption occurs in the peripheral parts of the body concomitantly with cardiac depression and lowered arterial blood pressure. For example, in the petechial fever of horses (*purpura hæmorrhagica*) as is well known there frequently occur enormous œdematous swellings in various parts prior to necrotic sloughing and now and then death ensues ere this stage is reached. Also the limbs can be very greatly swollen in such cases and it is observed at times, if the malady is sufficiently advanced that the muscular power of the heart is markedly depressed, the œdema of the legs suddenly vanishes, in fact to such a degree that they have some hours prior to death resumed their normal volume.

In heifers mammary œdema is met with toward the end of pregnancy and sometimes after calving in a far higher degree than is common in fully developed cows. The arterial ramifications of the udder in primipara are not so developed and dilated that the blood can find at all so easy a passage as in cows and the passive blood pressure is necessarily greater. It therefore follows that the blood stream, which flows through the udder immediately prior to and succeeding calving, cannot be so great in these primipara as if the mammæ were not enlarged by the œdematous swelling.

There remains, consequently, a relatively great amount of blood which had occupied the uterine vessels during pregnancy, which can be disposed of to other parts of the body, especially to the brain. *And yet this causes no paresis in primipara.* The tissues of the primiparæ are also, in the brain as well as other parts, more elastic than in older cows; since, however, the disease admittedly appears most frequently at the period of greatest vigor, this elasticity can play no part in this case or the disease would occur most frequently in aged cows.

That the disease should largely first appear two to three

days subsequent to birth or even later also fails to indicate as the cause a precipitous contraction of the uterus and the consequent interference with cerebral circulation, and brain-anæmia.

After the foregoing considerations, it may well be doubted if during the development of calf-fever cerebral œdema exists. For the symptoms indicate on the contrary an absorption of fluids from the tissues and that the brain would form an exception or rather a reverse condition and should become œdematous, while the tissues in other peripheral parts become anhydrous, is improbable. Neither can this have its cause in the softness of the cerebral tissue nor in the division of the arteries into an arterial plexus in ruminants, as Franck has sought to prove.

The hypothesis of intoxication from decomposition of uterine secretions appears at first thought, on the contrary, to be more probable than the Franck theory. It must be granted that the womb presents favorable conditions for the development of toxic substances after birth. Nor can one interpose with certainty any objections to such poisoning as the cause, based upon the symptoms of parturient collapse.

The toxæmia hypothesis has indeed found more and more adherents among veterinarians, especially since Schmidt-Mülheim* has directed attention to it, and pointed out the notable resemblance between the symptoms of the calving-fever of cows and the ptomaine poisoning of man. The ptomaine poisoning hypothesis, with the uterus as the fountain head of the toxine has, however, as its foundation the same presumption as the hypothesis of Franck, namely, a too rapid contraction of the uterus. That is, it is claimed that the ptomaine-like substance can not develop in the presence of air. That such an abrupt contraction of the uterus does not occur, as a rule, I have already tried to demonstrate. Not only is the presumption untenable, but there are numerous other circumstances which argue against the uterus as the point of origin of the disease.

* *Deutsche Zeitschrift f. Thiermedizin u. vergl. Pathologie*, Bd. II, S. 72, und *Handbuch der Fleischkunde*, S. 230-234.

(To be continued.)

MILK AND MEAT INSPECTION.

BY WM. H. GRIBBLE, D. V. S., ELYRIA, OHIO.

A Paper read before the Joint Meeting of the Ohio and Michigan Veterinary Medical Associations, July 12, 1898.

*Mr. President and Gentlemen :—*The topic we have chosen, "Meat and Milk Inspection," is a subject of great importance to the people, as to consumers of these articles, and to us, as veterinarians, students of practical sanitary science.

Meat and milk are articles of probably greater consumption, wherein man's cupidity needs overlooking, than any other article of food. True, bread and groceries may be adulterated with substances detrimental to health; yet our State pure food laws exercise a salutary effect upon this. Moreover, the consumption of these articles, with the possible exception of bread, is in no way to be compared with the quantity of meat and milk used.

We do not propose to take your time in undertaking to give our views as to the proper color and consistency of meat and milk or to propound our views as to what constitutes good meat and milk or bad meat and milk, but simply to give you some personal, practical illustrations as to the *quality* of material we are compelled to consume, in cities and towns where there is no inspector, or where the laws providing for them are not enforced.

This subject is important not only from a sanitary point of view, but also from a stomach feeling (pardon the term) standpoint as well, for we all know that while some meat or milk might be used with impunity and might not be detrimental to health in any way, there might have been some facts connected with these things, which, if known to the consumer, would not have been used. His stomach would have rebelled and failed to entertain the unwelcome guest.

We doubt if there is a man who denies the importance of meat and milk inspection. The Scriptures tell us that this was recognized in early history, the flesh killed for food by the Jews being regularly inspected by the priest; so, if important then,

how much more so now, when the enormous quantities of flesh and milk consumed for food and which are constantly increasing, make the quality and sanitary condition of these articles of the greatest importance to public health.

While most of our larger cities by municipal enactment have appointed inspectors and adopted a series of rules and regulations respecting food inspection, the use of the word "may" in section 31, laws of the Board of Health (when referring to the appointment of inspectors) operates so as to practically leave outside the pale of the law, as regards their meat and milk inspection, all our towns and smaller cities, for, on the plea of economy, either no inspector is appointed at all or else one who has little knowledge fitting him for the duties he may be called upon to perform.

Some boards of health even refuse to appoint an inspector, claiming that none is needed in their city; the board seemingly being entirely ignorant of the traffic in diseased meat.

An inspector should be a qualified veterinarian whenever it is possible to obtain one, because he has been especially educated as to the pathological changes and conditions of animals used for food; their diseases that are communicable to the human family; as well as the natural condition of the healthy carcass at post-mortem.

Fellow-practitioners, we do not believe that our profession will be recognized in this until our law-makers give us legislation looking toward the compulsory inspection of all meat and milk producing animals, and by State law, we, as veterinarians, are recognized upon all boards of health, wherever possible, on an equality with the medical profession.

True, section 3 of the law governing the practice of veterinary medicine and surgery in this State gives us some recognition in qualifying that only such veterinarians as have passed the State examination or have been in continuous practice five years, and no others, shall be employed by the State Board of Agriculture, State Live Stock Commissioner and State Board of Health.

This is good so far as it goes, but it does not go far enough, for section 9, Ohio Board of Health laws, practically compels all boards of health to contain two practicing physicians (M. D.'s), the veterinary surgeon not being recognized at all, and of the other appointed members of these boards, what a rarity to see a veterinarian ever appointed, while farmers, merchants and even day laborers, with little or no knowledge of sanitary measures, are seemingly well qualified for the positions. For this we are largely to blame ourselves ; we have not been educators. While most people know that domestic animals are subject to pleurisy, pneumonia, lock-jaw, etc., etc., there are many, many persons who do not know that these animals are liable to dyspepsia, asthma, heart disease, apoplexy, fits, spotted, scarlet and typhoid fevers, consumption, diphtheria, tooth-ache, ear-ache, cancer and even boils ; in fact, almost every disease that human flesh is heir to (the name in some cases being changed a little). Apart from this lack of knowledge people fail to appreciate the educational ability of the veterinarian. Then, again, there are too many practicing medicine, who make it a specialty to "doctor" the paymaster instead of the patient ; or, as it is often expressed, "working him for a good bill."

This is nearly always disclosed ; and when it is, it reflects to the discredit, not only of the individual practitioner, but of the whole profession at large.

In a large number of our towns and smaller cities, the appointing power of the boards of health still look upon the present veterinarian as "the old horse doctor," and this is not to be wondered at, when a large majority of our sister profession (the medical fraternity) look upon us as considerably beneath them in learning, in scientific training and in the knowledge of practical sanitary science. Why they do this I cannot say, for they should be the last to so judge us. One profession is at least the peer of the other ; in fact, does it not require a longer course of study to correctly diagnose disease by eye and ear, as the veterinarian must do, than where questions can be

asked and answered? And none will deny that on starting towards the goal of their respective professions one is as well educated as the other. While the great majority of physicians obtain their diplomas upon an attendance of two sessions at college, nearly all veterinary colleges demand, and compel, the students' attendance at three or more sessions, and each of these sessions as long, or longer, than the sessions of medical colleges. More than that, a part of the veterinarian's education is from the standpoint of comparative medicine, in the study of those diseases of man and animals which are communicable one to the other; and their effect upon the public health.

Take tuberculosis (consumption); that disease so widely disseminated that probably no part of our country is free from it; and which affects nearly all warm-blooded animals, more particularly cattle and the human family. This disease until recently was classed as hereditary, but it is now proven by the best of authority to be not hereditary at all, but a purely contagious disease due wholly to the bacilli tuberculosis, discovered by Prof. Koch.

You cannot have consumption without tubercule bacilli, and they are taken into the system by the lungs through respiration, into the stomach with food and by actual inoculation; they are given off from consumptive patients through the mouth, nose, bowels, vagina and milk. Infection through the air, breathing dust containing bacilli, is the most serious to deal with, while infection, from cow to man through the milk, is particularly dangerous, especially when the udder itself is affected.

Consumption causes one-fifth of the entire death rate of the civilized human family, and while statistics are not obtainable, the claim is made in some cases that 50 per cent. of our mature milch cows are affected with the disease in some form. Yet how many physicians study this one disease from the standpoint of comparative medicine, and would think of looking in the barn or the public dairy for the cause of infection of their

consumptive patient? This is exactly what is done by the veterinarian at all times ; he studies the relation of animal diseases to the public health.

These facts of themselves should be sufficient to grant veterinarians equal recognition with physicians on boards of health so that both could work in harmony, could work together for the lessening of the human death rate.

We believe that there is an immense traffic in diseased meat (dead and alive), for in nearly every city or town there is to be found butchers well versed in every known method of concealing diseased meat and selling it as sound, and who are willing, yea, anxious, to buy such carcasses and animals as would not be financially prudent for them to have their patrons see, especially previous to slaughter.

The risk is taken in consideration of the greater profits and is of course to be found far more frequently in our towns and smaller cities, where no attempt is made at inspection, and where private slaughter houses are used and pigs kept at these houses to remove the offal. A diseased animal may be butchered at night or in the privacy of the slaughter house, the diseased portions being destroyed. Then who is wise enough or unwise enough to tell the story?

That such things are done in all parts of the State we have no doubt, for the city in which we live, a city of seven thousand inhabitants, contains no worse citizens than other cities, and we personally know of such things being done there and done purposely.

We were called to see a cow (thin in flesh ; had calved two weeks previous) which had fallen in the road, rupturing a blood vessel of the brain. Treatment was of no avail. Some time the next day, the cow lying flat on her side, but not quite dead, a butcher of our city came along and purchased her for \$1. He carefully bled the animal, loaded her into his wagon and took her to the slaughter house, to be fed (he said) to the pigs, but a careful examination of that pig pen failed to show any of the bones, so we suppose the pigs ate them, too. More-

over, it would be foolish to bleed a cow to death for pig feed, when pigs are very fond of blood.

We were called to see a Jersey heifer, suffering from tubercular dysentery, where treatment did no good. She was sold to a butcher for \$2 for pig feed, but a quiet examination of that pig pen a few days later failed to show any bones ; pigs had eaten them also, I suppose.

A farmer living a mile or two from our city has a slaughter house on his farm. He was awakened one night by one of our butchers and asked for the use of this house as the steer they were driving was so fat and tired they could not get it farther.

Next morning the farmer went to see if the butcher had cleaned up the slaughter house, and there was the head of the worst case of big jaw we ever saw in our life ; several discharging sores, the teeth had fallen out ; and plainly showed that the animal was really very fat, at least about the head, but probably was so poor in the body that it was truly tired.

One of our butchers killed a cow heavy in calf ; the calf would probably have been born in a few days. The meat of that cow was sold, as was the calf dressed for veal, and when we spoke about this latter the man seemed surprised and informed me that they always did this, when the calf was advanced far enough.

We could give you records of cases of cows having cancer, erysipelas, broken legs, and we don't know what else, all of which were undoubtedly sold over the counter as first-class meat, but so butchered and managed that it would be almost impossible to obtain a conviction, unless one personally went to considerable expense to hire a private watchman or a detective.

One of the dairies that furnished our city with its milk supply had several cases of consumption among its cattle ; the main bull of the herd dying with this disease, while tubercular mammitis was very common. Still this milk brought the highest market price ; and we must confess that the dairy itself was a model of cleanliness.

Now, we cannot say that all these cases would be detrimental

to health, in the quantities usually eaten, in fact, the preponderance of evidence is that they were not, but that is not the question. Is it right, is it just, when, having sufficient confidence in a butcher to purchase our meat supply of him, supposing we are getting good, wholesome, first-class meat, that we should be furnished with sick and diseased stuff, which, if we had seen previous to slaughter, nothing could have tempted us to eat of it?

We have no objection to such meat being sold for just what it is, and let those who are willing to buy it do so, but when man's cupidity will allow him to lower himself so low that for dollars and cents he is willing to so trifle with our stomachs, it is time that we used our best endeavors to secure a law whereby such things would be reduced to the lowest minimum of possibility.

BONE SPAVIN.

BY F. HARVEY, M. D., D. V. S., BALTIMORE, MD.

In suggesting the following treatment for bone spavin I am aware that it is one which could not be carried out in all cases, but still, by the expenditure of a certain amount of diligence and care, there are not many cases to which the treatment could not be applied. For those veterinarians who have hospitals and all conveniences, I believe it to be an ideal treatment. I have only treated one case of this kind, but that was a success, and I hope that I may hear in the future that others have treated cases with success. Perhaps the success in my case was not due to any particular form of treatment, and for that reason I am anxious to hear if others have used a similar treatment, or if so, what results they obtained.

I am aware that I am suggesting nothing new to the profession as far as the general principle of the treatment is concerned, but only wish to call attention to its application in this particular disease.

The first steps in treatment are similar to those usually

adopted, viz. : the application of an ointment of biniodide of mercury (1 to 8), and attention to the hock until all swelling and fever have disappeared. The next step is the application of a plaster of Paris bandage to the hock, in such a manner that complete rest is obtained for the joint. Now the application of the bandage requires patience, and some skill.

In the first place it is necessary to keep the hock motionless, while the plaster is being applied, and until it has thoroughly set. This can be accomplished by holding up one foreleg, for a short time, but of course not long enough for the bandage to be applied and for it to set. This trouble is overcome by placing the horse temporarily in a sling, and having the foreleg held up. The bandage can then be thoroughly applied. In applying the bandage the leg must be in a natural position, not too much extended, or flexed (if anything slightly in extension). Great care must be taken to avoid bandaging too tightly ; it must be borne in mind that in setting the plaster contracts, and if after the bandage has been applied any swelling of the limb should be noticed, the bandage should be immediately removed, and reapplied.

Now that the plaster is applied, something must be done to keep the animal from flexing the limb. To prevent this I apply a small padded block (such as is used to keep a patella from being re-dislocated), placed in the hollow behind the pastern, and strapped around the pastern. It must fit closely and comfortably, resting on the lateral cartilages below, and reaching up to the under part of the fetlock joint.

We have now obtained what we desired, viz. : perfect rest for the joint ; no friction. The after treatment consists in keeping the animal in as confined a position as possible, and although I did not do so in my case, I suggest that the animal be kept in slings just as long as is possible.

How long should the bandage be kept on ?

As long as possible within a period of two months ; it may be necessary to reapply.

If the animal is kept in slings the limb may be kept

slightly in extension by using a cord fastened to a strap, around the fetlock, and carried forward between the forelegs, and fastened to a collar around the neck. When the plaster is removed, do not give the animal too much freedom for a month ; after that it is well to turn him out in pasture for a month or so when possible.

Now I know that there will probably be many objections raised to this treatment, and at first sight it does look as though it were an easier treatment to read about than to apply, but I can assure my professional brethren that, with patience and care, they will find that the treatment can be applied successfully.

To those not familiar with the way of applying a plaster bandage, it may prove a little troublesome at first, but practice will overcome this.

I do not wish to be understood as criticising anyone's ability as to applying a plaster bandage, but many, I am sure, will bear me out, that it is quite an art, and requires considerable practice.

I first conceived the idea of treating a spavined hock in the above way when I was treating some cases of inflammatory rheumatism in human beings ; I found that those joints to which plaster casts were applied did well, and seldom became anchylosed.

VETERINARY MEDICINE IN RUSSIA.

EXTRACTS FROM A PAPER BY DR. JEAN KOWALEWSKI.

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4. VETERINARY ORGANIZATION IN CITIES.

This is dependent upon the mayor's office of the cities and of the governments of districts. It is defective, except in such capital towns as St. Petersburg, Moscow, Varsovia, Kieff, Odessa, and Wilna. The city representatives are mostly simple merchants or workmen, whose intellect and civilization are limited. Though wealthy, these men object to all kinds of improvements,

such as central slaughter houses and markets, inspections of meats, microscopic laboratories, etc.

Notwithstanding their great power, governors cannot oblige the representatives to vote large amounts of money for the establishment of abattoirs, of analytic laboratories and of the veterinary personnel; and on that account the sanitary veterinary service is imperfect and in many places exists only in name.

In most of the large cities, this service is represented by one or two veterinarians, one filling the duties of inspector of the abattoirs, the other of sanitary veterinarian. Many cities have no special sanitary veterinary surgeons; in those cases, there are special appointments made by the mayors. At St. Petersburg, Moscow, Kieff, Odessa and Varsovia, there are two kinds of sanitary veterinarians: (1) the inspectors of abattoirs, and (2) the sanitary veterinarian proper. In St. Petersburg and Moscow these are called "police veterinarians." Sanitary veterinarians receive from 2400 to 8000 francs a year (\$500 to \$1600.) The best organization is in Moscow, where the personnel of the central abattoirs counts 10 veterinarians, one of whom is chief. The abattoir at Moscow cost 8,000,000 francs (\$1,600,000); it possesses a handsome laboratory of bacteriology, a rich microscope cabinet for researches of trichina, etc., a pathologico-anatomic museum and special room for autopsies.

At St. Petersburg the service is less important; there are only four veterinarians attached to it. Wilna has only one, Mr. Novievitsch, well known as a microscopist and a bacteriologist.

In most Russian cities there is no sanitary inspection of milk or dairies. Inspection of meat is very incomplete.

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5. MILITARY VETERINARIANS.

This organization is still imperfect. Military veterinary surgeons are still under the orders of inspectors of medicine and chief physicians of regiments.

Central Organization.—The great chief veterinarian of the

army is the principal inspector of medicine of the army. Under his orders are all physicians, veterinarians and druggists. In the military medical bureau at St. Petersburg, for the past two years, there has been a veterinary section, with one chief and two chief assistants—three veterinarians. In each military district, the chief of the veterinarians is military medical inspector; he has under him a chief veterinarian whose duties and power are very limited, as he is more a clerk than a veterinarian. In each regiment of cavalry and each brigade of artillery, there is one veterinarian, who has several assistant veterinarians (*sous-officiers*). The salaries of army veterinarians vary between 2800, 3500 and 4000 francs (\$560, \$700, \$800) a year, according to length of service. Every five years (the first one does not count) additions are made to the regular appointment, the first time *one-quarter* of his annual earnings; the second (15 years) *one-half*; the third (20 years' duty), *three-quarters* of his salary.

Army veterinarians, beside their special duties, have to teach in the schools of assistant surgeons. The students of these schools have to follow a programme for three years of elementary veterinary medicine and to pass an examination before a special board of veterinarians.

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8. VETERINARY EDUCATION (VETERINARY INSTITUTES AND SCHOOLS).

The following cities have veterinary institutes: Kharkoff, Kazan, Jourieff, Dorpat, Varsovia. The oldest is that of Kharkoff, founded under the name of "Ecole Vétérinaire Pratique," in 1839 and reorganized in 1873. Between these institutes, which have all the rights of faculties of universities, there are several elementary schools, for *assistant veterinary surgeons*: Kharkoff, Kazan, Jourieff, Tomsk, Tobolsk, Norvotschukassk, etc. At St. Petersburg, until 1880, there was a veterinary section (a faculty) at the Military Academy of Medicine, which was founded in 1808. All the veterinary institutes are attached to the Minister of Instruction, the director and professors are named by the Secretary. Students are selected

from young men who have finished their course of studies in technical schools, classical gymnasiums; the first have to pass an examination in Latin.

The course of studies lasts four years; after which those who have passed a successful examination receive their diploma of "veterinarian," which gives them the rank of sub-lieutenant in the army, after four years' service.

The veterinary schools of Kharkoff, Kazan and Jourieff are under the orders of directors from the veterinary institute; the duration of the course is five years and those who have finished it have the title of assistant veterinary surgeons; they may practice, under the survey of the veterinarians.

The largest and best organized institute is that of Kharkoff. The director is Professor Rajewsky. There are three ordinary professors, five adjuncts and five assistants. Natural sciences, hygiene and physiology are taught by professors from the faculty of medicine.

The institute occupies several buildings; a large clinic hospital for 50 patients, a chemical laboratory, amphitheatre of zoötechny, laboratory of bacteriology, a service of vaccine, a riding school, operating halls, hospital for dogs. A farm for zoötechny is wanted. The smallest of the institutes is that of Varsovia, whose faculty has eight professors. Dorpat furnishes the best practitioners, thanks to Prof. Putmann, who occupies the chair of practical operative surgery.

A young graduate from an institute is quite well posted, scientifically speaking; knowing well the microscope, bacteriology, chemical analysis, etc., he is deficient in severe cases of epizootics or of complicated affections where a rapid diagnosis is so essential.

The salaries of professors in the institute are 10,000 francs (\$2000), that of adjuncts 4800 francs (\$960.)

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10. VETERINARY SOCIETIES.

In Russia, there are eight veterinary societies:

(1) *At St. Petersburg*.—Society of Veterinary Physicians;

President, Mr. Woronzoff, Doctor of Veterinary Medicine, Professor of the Military Academy of Medicine; Mr. Peschtsitsch, Vice-President, veterinarian; Secretary, Sokoloff, Doctor of Veterinary Medicine. (This is the oldest society.)

(2) *At Moscow*.—Society of Practicing Veterinary Doctors; President, Mr. Roganoff; Secretary, Mr. Pourmè.

(3) *At Varsovia*.—Society of Military Veterinarians.

(4) *At Odessa*.—Veterinary Society.

(5) (6) (7) *At Kansk, Orol, Kharkoff*.—Veterinary Societies.

(8) That of *Kazane*.

12. PRIVATE PRACTICE.

Through a section of the Russian statutes, Russians and foreigners who have no diplomas, certificates or degrees of veterinarian have no right to practice, yet there is no part of the globe where empiricism is so extended. Gelders and many others injure horses and cattle and are free agents for propagation of anthrax and other epizootics. Judges and courts of law are very lenient toward empirics.

In large cities, veterinarians may obtain good practice and earn from 6000 to 30,000 francs a year (\$1000 to \$6000).

In other towns, veterinarians earn little and could not live without fixed governmental salary; these benefits vary between 1000 and 4000 francs (\$200 to \$800).

Russia is yet a "terra nuova," where veterinary medicine needs all the efforts of veterinarians to raise it to a respectable, material, but far from comfortable, position.—(*Presse Vétérinaire*.)

MARYLAND BOARD OF VETERINARY EXAMINERS.—The following appointments have been made by the Governor to constitute the State Board of Veterinary Medical Examiners: Drs. A. W. Clement, W. H. Martenet, and H. A. Meisner, of Baltimore; F. H. Mackie, of Fair Hill, and R. V. Smith, of Frederick City.

J. A. HUHNE, D. V. S., of Kingston, N. Y., graduate of A. V. C., '89, is now in Hawaii as lieutenant of Co. M. from Kingston.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

LARYNGOTOMY—ARYTENECTOMY FOR ROARING IN THE HORSE.*

By Dr. J. H. BLATTENBURG, Lima, Ohio.

Early in February a gentleman brought to me a black gelding hitched to a milk wagon. The horse was twelve years old, weighing about 1000 pounds, had at one time been driven in a few races, but in the last two or three years had done nothing but slow work, owing to the condition of being a roarer, and so bad that in a half-mile trot to the wagon he would be compelled to stop and walk from dyspnœa.

I acquainted the owner with the existing conditions; also the successful and unsuccessful results of an operation (from the varied experiences of those who had been performing the operation of removing the arytenoid cartilage), and said that, providing he was willing to take the chances of unfavorable results, I would operate upon the horse.

On February 16 the horse was returned for operation. I proceeded by clipping the hair around where I desired to operate, covering the larynx and trachea; then hobbled, cast, and secured him; administered anæsthetic of A-C-E mixture. When fully anæsthetized placed animal as near as possible upon his back, cleansing space antiseptically, then making an incision through skin and muscles in median line from thyroid cartilage to fourth ring of trachea, with little hæmorrhage save a couple of small arterial branches. The second incision was through the first four rings of the trachea, crico-tracheal ligament, cricoid cartilage, and crico-thyroidean ligament to body of thyroid cartilage, care being taken not to injure the vocal cords. Not being in possession of a tampon canula, I substituted an ordinary trachea tube, placed it in the trachea and packed around it inside the trachea with gauze, holding tube in position with string tied around the neck.

In viewing the inside of the larynx, it was easy to determine which of the arytenoids was affected; the left one did not move at all, while the right one moved freely by the ac-

* Read before the joint meeting of the Ohio and Michigan Veterinary Medical Associations at Toledo, Ohio, July 11 and 12, 1898.

tion of the muscles which governed it. Having at hand a half dozen small sponges and a long pair of forceps in the hand of an assistant, I proceeded as follows: Incising with a scalpel the mucous membrane along the superior and posterior edges of the affected arytenoid; then with a long pair of curved scissors cut through the vocal cord at its insertion on the cartilage and the mucous membrane along the lower edge, also muscular fibres of the crico-arytenoidean and thyro-arytenoidean, then the mucous membrane along the anterior edge, destroying as little mucous membrane as possible by cutting as close to the cartilage as can be done. The arytenoid was then lifted with a pair of forceps and cut away near its articulation with the cricoid cartilage with a probe-pointed bistoury, requiring some little force and a saw-like motion. Möller and Cadiot speak of an ossification having often taken place at this point in old subjects, but such was not the case here. The cartilage was removed and the wound sponged free from blood; the anterior and posterior edges of the wound were drawn together by three catgut sutures, this requiring a well-bent needle and needle-holder. After having removed all blood-clots from larynx, I packed it with antiseptic gauze, tied so as not to be worked around into the œsophagus. The packing around the tube was removed, and the horse, as soon as able, allowed to rise, was placed in a box stall without food or bedding, but having access to a bucket of water placed upon the floor. Next day packing in larynx was removed and larynx cleansed with damp sponges; tube cleaned and returned into trachea; damp oats was allowed and fed from the floor; small quantity of hay also. In five or six days horse was able to breathe through larynx and the large incision was being left open, the tube left out of the trachea.

In a few days the horse was sent home and orders to feed and water only from the floor.

He gradually grew better, till at the end of two weeks he would emit no sound at all when chased into a brisk trot. In ten or twelve weeks he began to roar again, even worse than previous to the operation. I then concluded that this case was going to be one of those of which it is oft reported, that "the operation was a success, but the patient succumbed," but in the course of a few weeks the roaring gradually lessened, and in the last five or six weeks the horse has been jogging to town every day drawing a milk wagon, and to all appearances and reports from owner is as sound as ever.

REMOVAL OF CYSTIC CALCULI FROM GELDING AND MARE.

By E. M. NIGHBERT, V. S., Mt Sterling, Ill.

CASE No. I.—Draft horse in good condition, and worked regularly, was found to be in much distress and pain. I was consulted, and having other urgent calls to attend to diagnosed the case colic and prescribed the usual remedies, not seeing the case. On my return an urgent call was awaiting me, as the horse was much worse.

The following symptoms were presented: Perspiring profusely, quick and heavy breathing, anxious expression, pulse and temperature greatly elevated. He would back his rump against the wall and get his abdomen over a corner of the

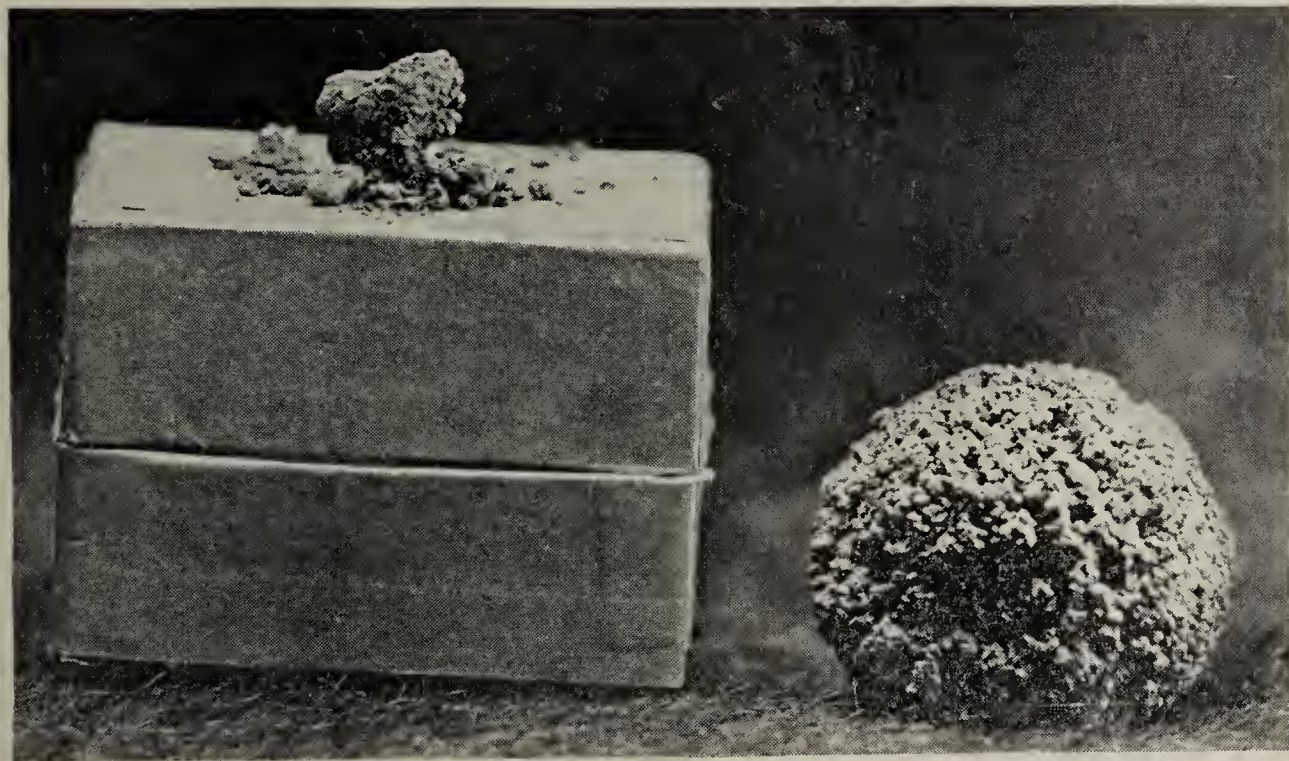


FIG. 1.

FIG. 2.

manger; in fact, would get in almost any shape to obtain relief—all symptoms of great pain and anxiety were present. I examined the patient thoroughly, and in the perineal region, just at the ischial arch, I found an enlargement about the size of a hickory nut. I passed a metallic catheter and the enlargement proved to be a calculus. I was unable to move it either way, as it was imbedded in the mucous membrane of the urethra. An operation was the only means of relief. I placed a twitch on the nose, cocained the parts, and did the operation standing. I made an incision over the object of fair length through the common integument, and as small an opening through the accelerator muscle and mucous membrane of the

urethra as practical and crushed the stone and removed it. The above (Fig. No. 1) is the exact size and condition of the stone after removal.

Treatment.—Washed out bladder with tepid water and boric acid, with tincture opii; stitched wound and dressed it antiseptically. There was no trouble in the escaping of urine and in ten days wound was entirely healed, and the horse put to work.

CASE NO. II.—Road mare, weight 1050 lbs., spirited and a good driver. Had been noticed for about a year to have painful and frequent micturation. The urine was noticed to be tinged with blood and at this time I was consulted.

She had undergone various treatments by several "hoss doctors" for various ailments, but all proved of no avail. She was in fair condition, appetite good, nervous and excitable. When stopped after being exercised would attempt to micturate, showing pain, which would soon wear off and return after being exercised the same as before. Made a vaginal examination and detected object in bladder. I then placed my middle finger on the floor of the vagina and passed it through the meatus urinarius into the bladder, and by contraction of the bladder the stone was thrown against my finger. I was then safe in saying it was a cystic calculus. I then proceeded to remove it, the mare twitched and standing. Having no lithotomy forceps or instruments of that kind at the time, I proceeded as follows: I pushed my finger well into the bladder, pressing the stone against its walls and by gentle traction I was able to pass the stone through the meatus without injury. I then washed out the bladder with tepid water, boric acid and tincture opii, and did nothing more. The mare did well and has not been bothered since. The above (Fig. No. 2) is about the exact size and appearance. Observe the roughness which caused the extensive irritation of the bladder.

I report the first case to show that we should always make a thorough and careful examination, even in apparent simple cases.

I report the second to show that by patience and time we can accomplish much to our credit and relief to our patients.

CÆSARIAN SECTION IN THE BITCH.

By FRANCIS ABELE, Quincy, Mass.

In the May REVIEW I see a case of Cæsarian section recorded, the dam (a cow) being destroyed. I have never had to treat a cow that way, but I was called to a valuable Boston terrier

bitch of about 12 pounds which had accidentally been mated to a Boston terrier of about 25 pounds. I found her straining to expel a large pup, breech presentation. I seized the pup by the hind legs and by traction removed him, after pulling him pretty well to pieces. The hips bound, then the abdomen bound and then the shoulder bound, so it seemed he could not come. I left her then to deliver the others if she could. Called ten hours later, but she had none started, so I used forceps, crushed the forward pup, and tried to draw him out, but it was impossible, so I gave her ether, slit the abdomen along the linea alba, drew out uterus, slit the superior surface, removed crushed pup, then another. My assistant performed artificial respiration, etc., and brought her (the pup) to life, while I swabbed the uterus with cotton, sewed it with gut, stitched the peritoneum and later the skin. Bitch did well, pup lived two weeks. Mother's milk dried up, no foster mother was procured, as pup was not wanted. Mother is still alive and doing well; was in heat a few weeks ago.

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

TETANUS IN THE COW FOLLOWING CALVING [*By Mr. H. B. Eve*].—Though lockjaw is not an uncommon disease in cattle, where all the various forms have been described by the various authors on cattle pathology, its mention as a complication of calving is rather unusual, and on that account the case related by the author is interesting. The case was that of a cow which had calved some days previous and was found presenting symptoms of tetanus—head raised, neck stretched out, nose protruding, nostrils dilated, tail elevated, stiff gait, jaws partly locked, muscles of the neck and loins rigid, membrana nictitans protruding over the eyes, nervous paroxysm on the least noise; pulse quick, wiry, temperature 103° . The treatment consisted in removing the animal into a dark loose box, plugging the ears with cotton, enforced quietness and seclusion, fresh sheep skin over the loins, gruel and mash; a pound of sulphate of magnesia, with two drachms of prussic acid in gruel twice a day, washing of the uterus with a solution of boric acid (1:25). Two days after the cow was found unable to rise and died during the night.—(*Vet. Record.*)

CASTRATION [*By P. A. Wilks, M. R. C. V. S.*].—With such a record as that presented by Mr. W. one can readily appreciate his enthusiasm upon the method of castration he has adopted in his practice. Three hundred cases in five years without losing a life is a success, especially considering the kind of horses he operated upon, viz., Shetland ponies, thoroughbreds and six-year-old cart horses weighing a ton or more. Mr. W. operates with the horse in the standing position and uses chams. He considers his *modus operandi* superior and safer than any other, and for all who wish to try his method he says: (1) See one operation done by a veterinary surgeon who is used to it; (2) operate the first dozen times on cart colts, as they are much easier and give less trouble; (3) do not hesitate, and keep cool—the cooler you keep, the quieter the colt will be; if omentum comes down cut it off; if, unfortunately, bowel should come down, cast him and put it back, but, above all things, *keep cool*.—(*Vet. Record.*)

INVERSION OF THE BLADDER IN A MARE [*By F. T. Harvey*].—This mare had been subject to this trouble on several occasions; the first occurrence being after giving birth to a live foal. During the first week urine was continually dribbling down the legs, scalding the skin and causing irritation. Recently the swelling formed by the inverted organ was less apparent, the mare had wasted very much. The bladder was inverted, with the fundus towards the os; the vagina acting as a sort of false bladder. The œdema was reduced by gentle pressure, and the organ returned in place, after some difficulty, through the urethra. To prevent reinversion a hand was retained in the vagina for twelve hours, tincture of opium, chloral and linseed oil were administered, and bicarbonate of soda added to the drinking water. The trouble has not returned and the mare is fast gaining flesh.—(*Vet. Record.*)

STENOSIS OF THE DUODENUM AS A CAUSE OF VOMITION IN A COW [*By F. T. Harvey*].—A cow was thought to have been choked. However, she presented very little out of the way. She swallowed almost anything given to her, but in a few minutes it was returned with considerable force. She was allowed no solid food for a few days, receiving a purgative, followed by prussic acid. She improved some. Brewer's yeast was tried with good effect, but after awhile vomiting returned, she became tympanitic. Death occurred twenty-eight days after her first attack. At the post-mortem, the gullet was found much dilated in the thoracic portion, with a wide, raw ulcer

about three inches from the œsophageal groove. The thickening was very slight. Rumen and reticulum contained little food. Omasum and abomasum were impacted, with their mucous membrane thickened. There was an annular constriction in the duodenum feeling like a small scirrhus in one part. There was no ulceration, nor any enlargement of the lymphatic glands.—(*Vet. Record.*)

MILK FEVER.—The modes of treatment of this affection are very numerous, and each has its advocates. Of late the *Veterinary Record* has called the attention of its readers to a new method which from the name of its author has received that of Schmidt's treatment. Several writers, W. Perchale, R. Barron, McGavin and Hardcastle, have published in our worthy contemporary a number of cases, some successful and others fatal, which are deserving of notice; especially the successful ones, which cannot fail to invite a trial of the new method. The translation of the description given by Veterinary Surgeon J. Schmidt, of Kolding, can be condensed as follows: "The udder is stripped, cleansed with soap and water and disinfected with lysol solution, 7–10 gr. of iodide of potassium are dissolved in a litre of fresh boiled water. When the solution has cooled to 40° or 42° it is infused in equal portions into the udder at the four teats, with disinfected wide-bore milk catheters. The infusion has to be accompanied with continued massage of the udder. If the pulse is weak and syncope is feared, 5 g. of caffeine are given in salicylate of sodium solution. At the same time the cow is wiped down, warmly clothed and receives every two or three hours an oleaginous salt clyster. If there is no difficulty in swallowing aloes is given internally." Out of 50 cases of varying severity, Veterinarian Schmidt claims to have saved 46. Comatous condition disappears in four hours, 36 animals got up within 24 hours and some of them in 5, 6, and 7½ hours. These satisfactory results seem to have been obtained also by others.—(*Vet. Record.*) [In this issue of the REVIEW is begun a translation of Schmidt's important article, and our readers are referred to it for full details.—EDITOR.]

FRENCH REVIEW.

RUPTURE OF THE KIDNEY IN A DOG [*By J. B. Scoffie*].—Rupture of the kidney, with fatal consecutive hæmorrhage, is rare in our domestic animals. An 18-months-old dog, appear-

ing indisposed, received a dose of castor oil. The same day, jumping over the door of his kennel, he fell down, and, after a few convulsions, died suddenly. His post-mortem proved most interesting. The abdomen, filled with uncoagulated blood, showed in the lumbar region a laceration of the peritoneum, opening into a large subserous pouch, at the bottom of which was found the left kidney, which presented a solution of continuity, three centimeters long, on the convex external border of the organ, with irregular edges; the solution of continuity was filled with clots. A clot was found in the ramifications of the renal artery, distributed in the centre of the laceration. To find the primitive cause of this arterial lesion, the circulatory apparatus was carefully examined. Numerous vegetations were found on the mitral valve. The ventricle contained some twenty strongyli. The lungs were heavy, sank in water, and when cut through showed, on pressure, small masses of worms rolled and contained in the pulmonary artery. This dog was affected with cardio-pulmonary strongylosis and endocarditis of the left heart; both being the evident causes of death. The valvular vegetations and the fibrinous deposits had evidently given rise to nephritic embolisms.—(*Revue Veter.*)

LARGE SUBCUTANEOUS MYXOMA IN DOG [*By J. B. Scoffie*].—This dog was brought to the author for a large tumor existing for some time, and which recently has assumed large dimensions, disfiguring the animal and undermining its general condition. The growth was the size of a man's head, measuring 19 centimeters in the antero-posterior diameter, 10 in the transversal, and 35 in the circumference at the base. The mass hung from the tenth rib to the coxo-femoral joint; it was movable; its surface was smooth, the skin over it was supple, but stretched. The consistency was soft, fluctuating here and there, and one point gave the sensation of liquid enclosed under the skin. The general condition was much affected, the appetite capricious, strength reduced, the prognosis serious. On exploration with trocar there was escape of colloid fluid mixed with yellow, soft, gelatinous masses, which soon filled the trocar. A free incision was made, and the entire cavity emptied. But when suppuration was established, the general symptoms became more marked, and the animal was destroyed. Minute examination of the part showed the neoplasm to be a pure myxoma; a benignant growth, which had, however, given rise to serious disturbance of general nutrition by its enormous development.—(*Revue Veter.*)

CEREBRO-SPINAL MENINGITIS FOLLOWING A DEEP WOUND OF THE POLL [*By Mr. Roy*].—This is the record of an interesting case, resembling very much what occurs in cases of pithing, though the researches instigated to find the true origin of the trauma remained undiscovered. It was that of a mare belonging to a regiment of cavalry, which was found one morning in her stall, lying down, struggling and unable to get up. After many efforts, and much assistance, she succeeded in rising, but was unable to stand and soon fell down. During her efforts to get up, a little stream of blood was observed escaping from a small wound in the occipital region. The symptoms presented by the animal were characteristic of severe cerebral lesions, cerebro-spinal, and notwithstanding an appropriate treatment, the mare grew worse so rapidly that she was destroyed. At the post-mortem the only important lesion found was the wound in the poll. It consisted of a small incision of the skin, with smooth edges, two centimeters wide, and extending in under the skin through the splenius, small oblique and great posterior straight muscle of the head, as far as the capsular ligament of the atlanto-occipital joint. This, as well as the dura mater, had been divided and were the seat of a sero-bloody extravasation extending to the cranial cavity. It was the internal hæmorrhage and its extension to the bulb and pons varolii which had caused the paralysis and the serious cerebral symptoms exhibited by the truly pithed animal.—(*Revue Veter.*)

MULTIPLE CYSTS AND GENERALIZED ANASARCA IN A FŒTUS [*By Mr. A. Delmer*].—After remarking that among the causes of foetal dystokia, due to diseases of the foetus, its malformations or its neoplasms, and which are mentioned by the authors on veterinary obstetrics, there are several which are not uncommonly met with, such as hydrocephaly, ascites, anasarca, contractures of various muscular regions, etc., there is one which has not been named, and that is the presence of cysts developed at the expense of the foetus itself. Having met with one case where the foetus had to be delivered by embryotomy he gives the description of the four cysts which interfered in the delivery: "Four in number, they occupied various regions in the body and were of different dimensions. The largest, situated on the superior border of the neck, measured 24 centimeters in length and 20 in width; a second, smaller, occupied the anterior region of the right scapulo-humeral articulation; a third the middle of the right thoracic wall, and a fourth the same place on the left side. Externally they had the form of

evenly fluctuating masses, not adherent to the internal face of the skin, nor to the tissues underneath. They contained a citrine fluid, transparent, odorless, slightly yellowish and measuring about 1800 grammes in quantity. The internal face of the cysts were smooth; the cavity multilocular, and divided into lodges of various sizes; they were lined with a thin transparent membrane formed of conjunctive tissue lined inside by epithelial cells." Besides these cystic productions, the subcutaneous connective tissue of the foetus was the seat of an œdema, easily depressed and pitting on pressure.—(*Record de Med. Vet.*)

NOTES UPON INFECTIOUS PARALYSIS [*By Mr. Quentin de Serancourt*].—These are truly the observations of a close observer, who relates the symptomatology of the affection which has received that name in some parts of Europe, principally in France, and which for want of a better name is known in the United States by that of epizootic spinal meningitis. The history of the two outbreaks that he has witnessed, the manner the symptoms occurred, their mode of manipulation, the rapidity of the disease, its fatality—everything points to the fact that the affection he describes and which is so common in the United States, leads one to believe they are identical. The author does not give any indications of treatment different from those that are commonly known, and while he accepts its contagious (?) character as positive, he still puts the questions, "Where and how does the infectious element develop? Are the lesions of the genito-urinary apparatus primitive or are they symptomatic?"—(*Rec. de Med. Vet.*)

AMERICAN REVIEW.

TWIST OR ROTATION OF THE COLON [*By Thomas V. Simpson, V. S., Yorktown, Canada*].—A three-year-old driving gelding, of 900 pounds, was taken sick during the night, and on following morning presented these symptoms: Subacute abdominal pain, lying down a great deal, passing a small quantity of fæces; animal dull, rubbing tail against stall; pulse slightly faster, but temperature normal. No impaction of colon detected by rectal exploration. The treatment consisted in administration of one ounce of aloes and two drachms ginger in solution. Patient worse in the afternoon, no fæces being passed. Barium chloride, gr. vii, given intravenously, after which hard fæces were passed, aided by clysters of warm water. By night

nothing further having passed bowels, and as patient seemed worse gave barium chloride, gr. x, intravenously, which secured passage of a little more hard fæces. At this time pulse quick and almost imperceptible, temperature 103° F., pain acute and constant, assuming dorsal position when down. Chloral hydrate eased pain and kept patient quiet. Death took place at 2 o'clock the next afternoon, preceded by very acute pain, quivering and sweating, and assuming dorsal position. The post-mortem revealed volvulus, the large colon being twisted at the sternal and diaphragmatic flexures. Very little was found in alimentary canal.—(*Jour. Comp. Med. and Vet. Arch.*)

ABNORMAL POSITION OF THE KIDNEY [*By S. J. J. Harger, V.M.D., Philadelphia, Pa.*].—In an aged gelding upon post-mortem the right kidney was normal in shape, but situated on the lateral wall of the pelvis opposite the neck of the ileum. Its artery was a branch of the external ileac artery, and its vein opened into the pelvic trunk. The ureter, very short, left the posterior extremity of the organ; its termination into the bladder was normal. By rectal examination the organ could have been mistaken for a pathological growth. The left kidney was normal.—(*Jour. Comp. Med. and Vet. Arch.*)

HÆMATURIA FROM UMBILICAL VEIN [*By G. W. Graham, V.S., Fort Perry, Canada*].—An eight-day colt, large and well nourished, from well-conditioned dam, had taken little nourishment for several days. It was continuously on the move, but would not lie down; uneasy; movements stiff; frequent attempts to micturate, passing about four ounces of blood each time, after much straining; mucous membranes highly injected; mouth hot and dry; grating teeth; tongue coated; hurried, panting respirations; small, quick pulse; action of bowels completely arrested; abdomen tender to pressure; abdominal ring enlarged, tense and painful on manipulation; expression dejected. The diagnosis of hæmaturia of umbilical vein, with constipation, was made, and an unfavorable prognosis given. Treatment consisted in placing colt on back and manipulation of umbilical swelling until a gurgling sound was heard. On regaining his feet colt at once passed a pint of blood, confirming diagnosis. Placing patient on right side, the urachus was opened, which was well closed at the lower end for one so young, but it was impervious internally. He now bled quite freely. An antiseptic solution of pyoktanin injected and a pledget of cotton soaked in same was inserted in urachus, which checked the hæmorrhage. Eight ounces of linseed oil were given

as a laxative, and a mixture of zinc, aromatic spirits of ammonia, belladonna, and ginger, in small doses, was given every three hours for two days, along with warm enemas of soapy water. Externally warm-water blankets were kept on abdomen for 24 hours. Next day patient was urinating freely, without blood, but bowels still confined, and appetite gone. Still occupied standing position, but less uneasy. Removing pledget urachus was found closed as before; repacked the opening. Four ounces fluid extract of cascara sagrada were given, continuing stimulant mixture, enemas, and hot cloths. In 24 hours more there was marked improvement, taking some nourishment and resting easily, but no action of bowels. The blankets were now discontinued and four ounces each of castor oil and linseed oil were given, which caused evacuation in fifteen hours. Removal of pledget was not followed by hæmorrhage, but a slight leakage of urine and some pus. From this on improvement continued, making a complete recovery.

SPANISH REVIEW.

VERATRINE IN INDIGESTIONS OF CATTLE [*By T. Romo y Bermejo*].—An eight-year-old steer presented the following symptoms: Right sterno-costal decubitus, dullness, loss of appetite and rumination, partial chills, looks to left flank; pulse rapid, respiration accelerated, mucous membranes injected. Pressure on the left flank revealed large accumulation of food in the rumen. Treatment—8 centigrammes of veratrine in alcoholic solution (1-20), after disinfection of the skin with sublimate. A great improvement took place in 20 minutes. A second injection, made two hours later, removed all the general symptoms. A third injection, however, was thought advisable, and recovery had so far progressed that the animal took food the next day with great relish.—(*Gazetta de Med. Veterin.*)

VAGINAL POLYPI IN COWS.—Mr. D. Luis Saniz, in the same journal, records cases of which the true etiology was unfortunately not established. Being called one day to attend a three-year-old cow, advanced in gestation, which had large polypi of the vagina, he extirpated them by amputation and cauterization. Recovery was complete in a few days. Several weeks later the author had the opportunity to observe the same trouble in several cows of a close-by farm. The cows were all in good condition and also far advanced in gestation. The polypi were also quite large and occupied the vagina. The same treatment

was applied to them and followed by the same result. All the information that could be obtained about the cause was that all these cows had been served by the same bull, and that this animal, some time before he went to the cows, was delicate and mounted the cows without ambition, and sometimes was unable to serve,—but that after awhile he seemed to recover and regain all his energy.

CARE OF UNSHOD FEET.

A. S. ALEXANDER, V. S., IN "BREEDER'S GAZETTE."

While a great deal is written from time to time regarding the overtrimming of the horse's feet by the shoeing smith, and while there is much truth in the varied complaints set forth by these writers, they seem to forget that judicious trimming is absolutely necessary when fitting a shoe and as necessary in caring for a growing unshod foot. The impractical amateur reiterates the time-worn saying that "The shoe should be fitted to the foot, not the foot to the shoe," whereas the truth is that each should be carefully fitted to the other; hence a proper amount of trimming is necessary and beneficial. We desire, however, to draw attention in this article more especially to the intelligent trimming of unshod feet, for daily we see in young horses the bad results of leaving the hoof entirely to Nature. On stony, hard, or gravelly ground the tendency is for the hoof to wear down somewhat in proportion to the growing process going on continuously. In such districts a tough, fair-shaped foot is developed naturally and all the attention necessary is to rasp away any cracked portions of wall that may be noticed from time to time.

But upon our fertile corn and grass lands where growth is very rapid, excessive secretion of horn may lead to disproportion in the form of the foot, to be followed inevitably by corresponding injurious effect upon the limb. The toe tends to grow too long under the conditions mentioned, and unless it be trimmed occasionally the weight is thrown upon the heels and an undue strain is put upon the tendons. Such overgrown feet are also too high at the heels, and we cannot get this condition without finding also that the frog is drawn up out of ground contact; hence contraction of the heels follows. Overgrowth of hoof may also result in one wall being higher than the other, result-

ing in a canting of the foot which cannot but act injuriously upon the limb, and all such overgrowth, whether at toe or quarter, may lead to serious cracks that prove difficult to cure afterward, but which may be easily prevented by timely trimming.

Such interference with hoof-growth consists merely in reducing the length of the toe and rasping the rough edges of the walls so that the foot shall come squarely in contact with the ground. The frog should be let alone, nor does the sole require any paring. Keep the frog in contact with the ground and the foot will develop a sound normal shape, but leave the walls and the toe alone and the frog will be likely to shrivel up, recede into the sole, as it were, and so lose its most important office.

This trimming of feet does not apply to growing colts only, but also to the feet of unshod horses confined in stables or small paddocks where wear is limited by lack of action. Where horses are turned out for the winter the feet should be examined at least once a month, and all surplus growth of toe and wall removed by the rasp. Where this is done many an incipient case of thrush will also be detected and stopped before the frog has been destroyed and the horses will be ready for spring work with sound feet instead of contracted heels and a corresponding tendency to lameness.

Many a good representative stallion of the imported draft breeds has brought his breed into disrepute in Western districts because of his unsound feet, but the fault lay usually in the owner's lack of proper attention to the feet rather than in the feet themselves or the particular breed of the horse. When a stallion is purchased the foot should be examined at time of purchase, and if it is sound then it can be kept sound by proper care, trimming and shoeing; but no foot accustomed to such care can remain sound when left unshod, untrimmed, and allowed to stand upon a manure poultice for weeks at a time to contract thrush or other evils the badly-treated foot is heir to. "No foot, no horse" is a truism if a horse—"chestnut," but in nine cases out of ten the foot is all right at first, as is the breed, but bad management ruins Nature's work, and man's achievements in breeding and the blame falls always in the wrong place. Intelligent efforts toward breeding profitable grade horses may then prove abortive through lack of attention to the growing unshod foot, for such inattention is a prolific cause of bent knees, straight and "cocked" ankles, corns, quarter-cracks, thrush, and many other troubles which depreciate the value of the horse.

Nor should the growing steer or sheep receive less atten-

tion, for we have seen a beast fit to win a fat-stock show championship thrown out on account of deformed lame feet, and thousands of cattle and sheep suffer annually from foul in the foot or foot-rot, which might be easily prevented by judicious use of the knife and rasp, and the provision of sanitary environment.

THERAPEUTIC REVIEW.

SOLUTIONS OF CAFFEINE FOR HYPODERMIC INJECTIONS.—

(1) Benzoate of soda, 7 grammes; caffeine, 4 grammes. Place them in a little capsule, with a small quantity of water, and dissolve by heating. Pour the solution in a graduate glass, heated to the water bath, wash the capsule, and add water in sufficient quantity to make 16 cubic centimeters. This makes a solution containing 0.25 centigrammes of caffeine to one cubic centimeter. (2) Caffeine, 5 grammes; salicylate of soda, 5 grammes; warm distilled water, q. s. to make 17 c.c. This solution contains 0.29 centig. to the c.c.—(*Bulletin Veterin.*)

TREATMENT OF ECZEMA.—Against severe acute attacks, accompanied with troublesome itching, Bouk uses a glycerolate made as follows: Pulverized talc and starch, of each 100 parts; glycerine, 40 parts; lead water, 200 parts. Stirred before use, a part of this glycerolate is mixed with twice the quantity of ordinary water. It is applied on the skin with wadding. The itching stops immediately.

INJECTIONS FOR OPEN JOINTS.—The following recommended by Nocard and Cagny is injected into open synovial bursæ with Dieulofay apparatus: Thymic acid, 2 grammes; glycerine, 100 grammes; water, 900 grammes.

IODURATED INJECTIONS FOR HYDROCELES, DROPSICAL CONDITIONS, HYGROMAS AND HYDRARTHROSIS.—Tinct. iodine, 50 parts; iodide of potassium, 2 parts; distilled water, 50 parts. This is recommended by Bouret, who has obtained very good results with its use.

SOCIETY MEETINGS.

NEW YORK STATE V. M. SOCIETY.

The annual meeting of the Empire State Society will be held at the Hotel Metropole, Forty-second Street and Broadway,

New York City, Wednesday and Thursday, September 14th and 15th, and when the REVIEW went to press everything seemed most propitious for a large and valuable meeting. The literary programme is especially brilliant, appealing to every phase of the membership, and we are sure that the publication of the subjects and their authors will bring out a large attendance, for we cannot see how the members can afford to be absent when subjects of so much importance are to be discussed in such close proximity to them. We also urge our New York readers who are not already connected with this society to join it at this meeting, as they need its influence and opportunities, while the society would be greatly strengthened by their co-operation, resulting in great good to both.

Secretary Morris has supplied us with the following list of papers to be read and discussed :

"Glanders and its Relation to Mortality," by Dr. James Law, New York State Veterinary College.

"Nail-Wounds of the Feet of Horses," by Dr. Roscoe R. Bell, American Veterinary College.

"Notes on Tooth Tumors," by Dr. W. L. Williams, New York State Veterinary College.

"Osteoporosis," by Dr. George H. Berns, Brooklyn, N. Y.

"The Science versus the Art of Veterinary Surgery," by Dr. Robert W. Ellis, New York City.

"Hydrotherapy in Domestic Animals," by Dr. W. L. Williams, New York State Veterinary College.

"A New Treatment of Milk Fever," by Dr. Olof Schwarzkopf, Flushing, L. I., New York.

"Streptococcus Injection in Domestic Animals," by Dr. V. A. Moore, New York State Veterinary College.

"Some Experiments with Antiseptics," by Dr. P. A. Fish, New York State Veterinary College.

"Notes on the Embryology of Domestic Animals," by Dr. Simon H. Gage, New York State Veterinary College.

"Relation of the Ligamentum Nuchæ to the First Cervical Vertebra in the Horse," by Dr. G. S. Hopkins, New York State Veterinary College.

"A Simple Test for the Detection of Albumen in Urine," by Dr. P. A. Fish, New York State Veterinary College.

"
," by Dr. E. B. Ackerman, Brooklyn, N. Y.

The Metropolitan members are arranging to entertain the visitors while sojourning in New York. One of the diversions

will be an illuminated trolley ride from the Brooklyn Bridge to Coney Island, late in the afternoon of the first day, so that it will not interfere with the work of the convention. The route to the sea lies through a very pretty section of Brooklyn, through beautiful suburban villages and parks, and by seaside resorts. At the destination a shore dinner will be served at the Albemarle Hotel, West End, Coney Island, and those who have never enjoyed such a repast should not fail to add this to their list of pleasant experiences in this life. When this has been accomplished, the members will be turned loose in the "Bowery," where the sights of that historic donnybrook may be observed until the hour for the start back to New York.

It is confidently expected that there will be the largest outpouring of members that has ever occurred, and as every arrangement justifies it, it should be the banner meeting of the State Society.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The second semi-annual meeting of this association was held at Faribault, Minn., July 14 and 15, 1898. In the absence of the President, Vice-President M. H. Reynolds called the meeting to order at 11 A. M. at the Council Chamber. Those in attendance were: Drs. W. Amos, Owatonna; J. J. Annard, S. D. Brimhall and C. C. Lyford, of Minneapolis; B. A. Pomeroy and Richard Price, of St. Paul; J. N. Gould, of Worthington; J. A. Hanisch, of Lake City; J. W. Gould, of Fairmont; K. J. McKenzie, of Northfield; M. H. Reynolds, St. Anthony Park; S. H. Ward, of St. Cloud; H. C. Lyon, Hutchinson; James Nicholson, Pipestone; A. F. Lees, Red Wing; L. Hay and Geo. Milligan, of Faribault.

The reports of the Secretary and Treasurer were read and adopted.

Dr. Price reported the appointment by Governor Clough of Drs. Reynolds and Ward on the State Board of Veterinary Examiners.

Dr. Reynolds, chairman of the Committee on Infectious Diseases, gave a lengthy and interesting report on dealing with contagious diseases in this State, including a report of the work done during the past year and of new State laws in that connection.

A discussion then followed on dealing with cases of illegal practice of veterinary medicine and surgery.

At the close Drs. Nicholson and Lyons were elected members of the association.

In the afternoon the members met at L. Miller's livery stable, where Secretary Hay previously gathered in a number of interesting surgical cases, which were operated on as follows :

Removal of diseased molar tooth, and operation for dental fistula of the lower jaw, Dr. J. W. Gould, Worthington; caudal myotomy for straightening crooked tail, Dr. R. Price, St. Paul; caudal myotomy, Dr. K. J. McKenzie, Northfield; cunean tenotomy and cauterization for relief of spavin lameness, —Dr. S. D. Brimhall, Minneapolis; cauterization of tendons for tendinitis, Dr. L. Hay, Faribault; cauterization of tendons, Dr. B. A. Pomeroy, St. Paul; operation on horse's shoulder for the removal of a fibrous growth, Dr M. H. Reynolds, St. Anthony Park.

The meeting then adjourned until after supper, when it was called to order again at the Council Chamber. Among the business transacted was the election of Drs. Butler and Keyes, of Minneapolis, to membership in the association, and the reporting of a number of interesting cases by the different members of the association.

Friday morning the members assembled again to witness a case of "urethrotomy" for the removal of a cystic calculus. Dr. Reynolds was the operator, assisted by Dr. Lyford. The animal was cast and chloroformed, Dr. S. D. Brimhall being the anæsthetist; the catheter was inserted and Dr. Reynolds proceeded with the operation, which proved to be quite a difficult one, since the calculus was found to be enveloped to a considerable extent by the folds of the mucous membrane; Dr. Reynolds was therefore compelled to use the lithotrite and crush the calculus before its removal could be effected. After coming out from under the influence of chloroform, the animal appeared to be very little disconcerted with what had happened (since we know that it has made a splendid recovery).

Dr. Price then demonstrated a new method of performing cunean tenotomy, which has the advantage of being bloodless. Drs. Reynolds and Brimhall conducted a diagnosis of a case of lameness, while Dr. Hay performed another cauterization for weak tendons.

Dr. C. C. Lyford operated on a horse's nose, removing a couple of sebaceous cysts.

An adjournment for dinner was then taken.

Clinical work was resumed at 2 P. M. Dr. Lyford excised a

large fibroid tumor out of a horse's shoulder; the animal was cast and chloroformed.

Dr. Reynolds performed the lower plantar neurectomy on both front feet for relief of lameness from navicularthrititis. This finished up the clinical programme of the meeting.

A vote of thanks was tendered Dr. Hay for the abundant clinical material secured, and for the effort in making this the most successful meeting ever held in the State. A vote of thanks was also tendered to Mr. L. F. Miller, of Faribault, for his courtesy in supplying suitable quarters for the holding of the clinics, and also to the proprietor of the Commercial Hotel, for his hospitality and courtesy to the members of the association.

The meeting then adjourned.

L. HAY, V. S., *Secretary and Treasurer.*

GENESEE VALLEY VETERINARY MEDICAL ASSOCIATION.

The regular semi-annual meeting of the above association was held at the Livingston Hotel, Rochester, N. Y., on July 21, 1898. The meeting was called to order at 11 A. M. by the President, Dr. A. Drinkwater, of Rochester. At the roll-call the following members responded: Drs. A. George Tegg, L. R. Webber, E. Knight and J. C. Mackenzie, Rochester; O. B. French, Henoeye Falls; J. H. Taylor, Henrietta; N. N. Lefler, Geneseo; W. B. Switzer, Williamson; P. J. Johnson, Sodus; G. C. Kesler, Holly; Thos. Flood, Gorham; and E. H. Nodyne, Clyde.

The minutes of the last meeting and the Treasurer's report were read and accepted.

Dr. W. Hunter, of Dansville, was proposed and elected a member.

The committee of incorporation reported that the association had been incorporated in accordance with the laws of the State governing incorporation of societies. It also exhibited a specimen of a membership certificate, which was accepted.

Papers were read by Drs. Switzer and Lefler, and several specimens were exhibited and cases reported, all of which led to a long and very interesting discussion.

The following members were named by the President to prepare papers for the next meeting: Drs. Nodyne, Knight, Kesler, Drinkwater and Mackenzie.

The meeting then adjourned.

A. GEORGE TEGG, *Secretary.*

ALUMNI ASSOCIATION AMERICAN VETERINARY COLLEGE.

The following letter has been issued to the members by President Pendry, and explains itself :

BROOKLYN, N. Y., August 10. 1898.

My Dear Doctor :

In consequence of the several ineffectual attempts, both on the part of the Secretary and myself, to obtain the books and records from the late Secretary ; I have been unable to determine upon the several committees, and thereby put in motion the project of the celebration of the Silver Anniversary of the A. V. C. I deem it best to call a meeting of as many of the active alumni who are conveniently near to meet at the college in consultation, so to speak, on Thursday, September 22d, at 3 P. M.

This is a matter that should receive the hearty support of every alumnus of the A. V. C., and I hope that every member who can be on hand will be there to help me with their advice and suggestions in an endeavor to show with appropriate honors our love and affection for Alma Mater on her Silver Wedding.

Yours very truly,
W. H. PENDRY, D. V. S., *President.*

NEWS AND ITEMS.

J. O. GEORGE, D.V.S., of Camden, N. J., has received a re-appointment as meat inspector of that city.

If you cannot go to the Omaha Convention, you can at least get a good idea of its transactions in the October REVIEW.

PROF. W. L. WILLIAMS, of Ithaca N. Y., stopped over in Illinois to visit his parents on his way to the Omaha Convention.

ARTHUR J. HAMMERSTEIN, D.V.S., of St. Louis, Mo., is veterinarian to the fire department of that city. The department owns 300 horses.

WILL the Chicago Veterinary Society resume the discussion of unsoundness in horses when it begins again its monthly meetings? It was very interesting and valuable.

THE REVIEW NEEDS MORE SUBSCRIBERS ; it must have them. You can make it a very light task to secure them by calling your fellow-practitioners' attention to its value and helpfulness.

W. H. PENDRY, D.V.S., of Brooklyn, N.Y., still has a taste for Republican politics. Recently he was unanimously elected President of the 28th Ward Association, which is the second largest ward in the city, having 145 delegates.

WE have received a copy of the Constitution and By-Laws of the Genesee Valley Veterinary Medical Association, and it reflects much credit upon the committee having its compilation and printing in charge, for it is unusually well arranged and printed.

A. N. LUSHINGTON, of Philadelphia, a graduate of the University of Pennsylvania, has accepted the position of instructor in the elementary principles of veterinary and sanitary science and hygiene at the Belmead Industrial School near Rock Castle, Virginia.

TO CURE A "PULL-BACK."—A good way to cure a horse that pulls at the halter, is to take a stout rope, fasten it around his shoulders, put the other end through the ring in his halter and tie to a stout post. When he finds he is pulling with his body he will soon quit.

READ the report of the semi-annual meeting of the Minnesota State Veterinary Medical Association in this issue, and note what valuable clinics were held. Can anything be of greater interest and benefit to the members? Isn't it an example to be emulated?

FEEDING RAISINS TO HORSES.—A California farmer has been experimenting with his superfluous crop of raisins by feeding it to his horses, giving about twelve pounds a day to each animal. He claims that they relish them, keep in good condition while working, and that it is a great economy to the feeder.

VALUE OF HORSE HIDES.—More horse hides are probably tanned in Newark, N. J., than in any other place in this country. Cordovan vamps are the product. Three, and sometimes four, splits are made and finished. It is estimated that \$16 is realized per hide and the yearly business done amounts, it is said, to \$10,000,000.

PRACTICE DULL IN CALIFORNIA.—On account of an unusually dry season, private practice is reported as very dull on the Pacific Slope, and the outlook discouraging to veterinarians. When the business revival gets well under way the veterinarian's services will be in greater demand than has ever been recorded in history.

DR. FRANK H. MILLER, of New York City, will be married on the 7th inst. to Miss Helen Harris Simpson, of Burlington, Vermont, the former home of the groom. Dr. Miller is well known to the readers of the REVIEW through his recent excellent contributions to veterinary literature on the subjects of "Follicular Conjunctivitis" and "Canine Otorrhœa."

AN IMPORTANT STEP.—Governor Hastings, of Pennsylvania, appointed Professor Leonard Pearson, of the Pennsylvania Live Stock Sanitary Board, as a delegate to the Tuberculosis Congress which met in Paris, the 1st of August. Such intelligent and public-spirited action in the executive of a great State should receive the gratitude of the profession everywhere.

AMERICAN HORSES IN BELGIUM.—During 1897 there were about 5000 American horses sent to Belgium and the volume of importations for this year will be considerably increased. Mr. Von Schelle, the representative here of the Belgium Government, lately made a tour of inspection of American horses and makes a very favorable report. He announces that he finds the American horses free from contagious diseases.

ANOTHER VETERINARIAN IN A SCIENTIFIC POSITION.—Gradually but surely the veterinarian is forcing his way to those positions in sanitary science to which his training so well fits him. One by one the large cities of the country are attaching him to their boards of health, and we know of no instance in which such a step has been retraced. By virtue of his worth he holds whatever he can secure, and reaches out for further advancement. We have just received the news of the appointment by the Oakland (Cal.) Board of Health of Dr. R. A. Archibald to the position of bacteriologist of the department.

A GERMAN BOOMERANG.—Germany is experiencing a genuine meat famine as the result of her severe regulations enforced against American meat and similar restrictions regarding the products of Russia and Denmark. A German journal representing the butchers says: "Away with the prohibition of cattle importation! Each day's delay increases the suffering among the people and the resultant danger." A society for the protection of the German meat trade and industry asserts that of the 3003 cases of trichinosis which have been recorded in Prussia during the last fifteen years not one is traceable to American salt, corned or preserved pork, and offers a reward of 1000 marks for proof to the contrary.—(*Breeder's Gazette*.)

THE NEW YORK SPEEDWAY.—The light harness horse having been crowded from his old haunts in upper Gotham by the

advance of building and the invasion of the bicycle, the owners were without any facilities for speeding, or even pleasure driving. To overcome this legislative enactment was secured, and the Speedway constructed for the exclusive use of light vehicles. It was thrown open to the driving public recently, and about the first thing that followed was a suit to mandamus the Park Commissioners and prevent them from restraining the use of the bicycle upon this the only spot on earth which it was hoped would be kept sacred from this universal nuisance. To the everlasting honor of the court, the application was peremptorily refused.

DID THIS HORSE RUPTURE THE FIBRES OF THE ŒSOPHAGUS?—A patient was brought to the hospital of the junior editor of the REVIEW suffering from gastric indigestion, but while his breathing was labored, no eructation of gas occurred. He was extremely sick, hanging his head to the ground, making a spasmodic squeal every minute or two, as though endeavoring to vomit. In an instant he broke into a profuse perspiration, the sweat coming in drops from his face, ears, and neck. Gas began to regurgitate, coming up the Œsophagus in great volumes. He was scraped, rubbed dry with alcohol, and seemed much relieved. In a few hours he was eating and out of danger. Did the spiral fibres rupture, relaxing the Œsophageal opening to the stomach, permitting of the escape of the confined gas, and save a rupture at the greater or lesser curvature?

SPRAYING CATTLE FOR TICKS.—Dr. W. K. Lewis, the well-known veterinarian of this place, has just received an apparatus that may in the future play a prominent part in freeing cattle from fever-producing ticks. It is a large tank of galvanized steel made for the purpose of containing oil or any other liquid found to be the right thing for the destruction of cattle ticks. Some time ago Dr. Lewis evolved the spray theory for ridding cattle from ticks, and made some experiments which satisfied him that it was the cheapest and most effective manner of successfully destroying the dreaded *boophlius bovis*. Dr. Lewis' proposed spray method is an application of the tick-destroying fluid by means of a spray to the animal's hide, applied through a hose under strong pressure by means of compressed air. By this means he believes he can use every drop of the liquid and effectually reach every portion of the animal's body, using a comparatively small quantity of the liquid and reducing the expense far below that which would be incurred by the dipping

vat. The idea is entirely original with Dr. Lewis, nothing of the kind having ever been attempted before. He estimates it will require the expenditure of but a few pints or quarts for each animal infested with ticks. The tank is set upon wheels and Dr. Lewis proposes to haul it around to the infected herds and make the applications, thus rendering the building of dipping vats or driving cattle to them unnecessary.—(*West Texas Stockman, Colorado City.*)

A VETERINARIAN IN A "SMASH-UP."—Dr. W. T. Monsarrat, the American veterinarian, who has done so much for the profession in our most recently annexed colony (Hawaii) figures prominently in the following story, from the *Honolulu Advertiser* of June 9: "A horse that American Minister Sewall has been using a few weeks freed itself from a rig out on Beretania Street at noon yesterday and made a run for a stable down town. Directly in front of Central Union Church the excited horse, travelling at a strong gallop, overtook Will Monsarrat in his rig. Theo. Hoffman, who was driving near, shouted a warning to Monsarrat, but it was too late. The runaway horse dashed into Monsarrat's outfit and in a twinkling there was a mixup of two horses, a carriage and a man. Mr. Monsarrat escaped with a few bruises and disordered clothing. His horse was cut somewhat and the runaway horse was quite badly injured."

HORSE INSURANCE HARD TO GET.—It is not possible now to have a valuable horse insured in this city. A year or two ago there were several horse life insurance agencies here. Many horse owners have their stock insured outside of the State. At last accounts the only horse life insurance company in New Jersey had headquarters in Canada. Horse life insurance appears to have been disastrous to every capitalist who has touched it, and after taking advantage of experience gained in both Europe and America, it is still an experiment. Speaking to an agent of one of the defunct companies regarding the failure of horse life insurance, he gave various reasons for the want of success. In the first place it requires extensive capital, which cannot always be had. In Europe horse life insurance has been tried for 100 years, with a fair share of success to the investors in the enterprise. In this country it has been conducted on various plans, and many of the schemes failed to meet the end for which they were designated. After meeting heavy losses, very vigorous ruling was adopted by several of the companies as to the character of the risks. Car horses, driving horses, fancy-priced horses, runaways, blind horses, cribbers,

cab horses, omnibus horses and business horses were ruled out. This only left very choice risks, such as family carriage horses and well-kept horses doing light draught work. The principal reason, however, for non-success was want of sufficient capital to keep the project going.

An experiment in horse life insurance was tried in New York some years ago by the Retail Grocers' Union, an organization of about 1000 members. Inside the Union a horse-insurance fund was started, and $1\frac{1}{4}$ per cent. was collected on the amount for which each horse was insured, while losses were sustained pro rata by the members in the scheme. No horse was insured for over 75 per cent. of its value. In less than eight months losses by pneumonia and other diseases were so great that the grocers were compelled to raise the dues to 2 per cent. Most horse owners are satisfied if they insure their stables for a good round sum, imagining that most of the danger to their stock dying suddenly is in the direction of fire.

Probably the heaviest insurance ever placed upon a horse to protect the owner against loss by death was the amount for which Blundell Maple, Member of Parliament for Dunwich, had the famous racer Common insured. He paid a premium of £500 for an insurance of £10,000. He also made a similar provision against the premature death of Plaisanterie, which was a yearling at the time. He paid 6000 guineas for the colt and insured it for £5000 at a premium of £300. The insurance was a novelty in England at the time and was a good deal talked about.—(*Newark, N. J., Sunday Call.*)

THE STATE OF VETERINARY SCIENCE IN ENGLAND.—At a meeting of the Central Veterinary Medical Society, held at the Royal College of Veterinary Surgeons, Red Lion Square, on the 7th inst., Mr. H. Sessions, of Brighton, read a paper on "Veterinary Sanitary Science," in which he pointed out how greatly this country was behind other continental nations in methods for the suppression and prevention of diseases among animals. He said that had all counties and boroughs in the kingdom competent veterinary officers of health, and gradually taught, by issuing minimum regulations, that air and light were essential for stabled animals, an immense amount of loss and disease would have been prevented. Gradually in town and country more attention would have been paid to these matters, and the sheds and houses altered to meet the requirements. Periodic ophthalmia, many cases of colds, pneumonia, many virulent attacks of influenza, glanders would have been unknown; while that wide-

spread disease, tuberculosis, as to which he gave evidence before the recent Royal Commission—a disease that caused such a large annual loss among our cattle, and whose reach appeared to extend through cattle to the loss of human life—would, at least, have been kept within much smaller limits. In this one respect a sum would have been saved the country large enough to maintain a veterinary sanitary service for a generation. In existing circumstances there was no uniformity of action and no centralization of the work done. He suggested that at the Board of Agriculture there should be an inspector to tabulate the cause of animals' deaths. Every county or large district needed, and had plenty of scope for a veterinary officer, whose whole time should be devoted to executive work. It was highly desirable that the Veterinary Department of the Board of Agriculture should be in active touch with the veterinary profession throughout the country, with a progressive policy of its own, and with competent officers in every district, its aim being to render applied veterinary sanitary science second to the practice of no other country, but in advance of all other nations, as befitted a land whose flocks and herds were the finest in the world. In the discussion which ensued, Mr. Sessions' views were unanimously approved, Mr. W. Hunting, ex-President of the Royal College of Veterinary Surgeons, contending that the Veterinary Department of the Board of Agriculture greatly required strengthening.—(*Mark Lane Express*.)

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AMERICAN VETERINARY REVIEW.

OCTOBER, 1898.

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EDITORIAL.

RECENT VETERINARY SOCIETY MEETINGS.

The National and a number of State veterinary medical associations held their annual conventions during August and September. This is not a new departure in veterinary medicine in this country. The same has been done at about the same time for many years. Perhaps the attendance of members has been as great on some occasions in the past as it was this year, and maybe papers of equal value and even more numerous have been presented for their consideration. We very much doubt, however, if there ever was a season in which the attendance, interest in the deliberations, merit, and general excellence of the papers and discussions all conspired to render associational work so successful and satisfying. In two instances a leading feature was the introduction of surgical clinics, and in the case of the U. S. V. M. A. it was an innovation which caused considerable misgivings in the judgment of some of the most experienced association men, and they predicted that all manner of ill effects would flow therefrom. In order to be in possession of the pulse of the members who attended this meeting the representative of the REVIEW interviewed a majority of them, and it does not hesitate to affirm that the opinions expressed were overwhelmingly favorable to the departure. They argued the point in this way: The presentation and discussion of dissertations upon State medicine and sanitary topics are without doubt a function of the American Veterinary Medical Association, as is also the adoption of resolutions based upon the

conclusions reached from such deliberations. It not only aids in the solution of pressing public professional problems, but gains for the subject the far-reaching influence of the representative association of America. The individual, however, believes that so far as facts and fruitions go, he can learn as much through the medium of the journals and the official report of the proceedings as though he were upon the ground, and in the case of the private practitioner the questions are not sufficiently near his hearthstone to impel him to travel half way across the continent to hear read and spoken what he can read and deliberate upon in the quiet of his home and in his leisure hours. It is true, he loves to meet and commune with his colleagues, but the incentive is not great enough to cause him to drop his pressing affairs and make the expensive journey. There must be some feature of the meeting which is distinctive, something which can only be obtained there, something which if omitted is lost to him, and which renders him perceptibly poorer by such loss ; something to be gained which will make him better and more competent to pursue his calling, which will add to his knowledge and ability, and cause his success to be more assured. And this is just what is supplied by the clinics—those conducted upon a high plane by men of real ability and reputation ; operations of practical utility which appeal to practical men. They are helpful and aid the members to become more proficient and profitable. No amount of descriptive writing can supplant their ocular demonstration ; actual attendance is insured and secured, and the fascination of the other subjects, and the pleasure and profit of association with his brethren will secure his interest and enthusiasm for the annual convention, and he will learn to look forward to it with pleasant impatience.

In the August REVIEW we indulged in some remarks on the generalization of veterinary medicine, pointing out that the practitioner is forced to become a specialist in so many departments—that of defects of the locomotory apparatus, general diseases, surgery, canine and bovine pathology, breeding, as

well as the important and ever-expanding subject of sanitary medicine, including meat and milk inspection—that the possibilities of human exertion will not permit of such vast and varied accomplishments, save possibly where there are exceptional opportunities. We are convinced, therefore, that the introduction of clinical work into local, State, and national association meetings will be of the greatest benefit to their members, and is destined to reach a high degree of popularity, and to remain upon their programmes as a permanent fixture. Dr. Robert W. Ellis, of New York City, read a very thoughtful paper upon this subject at the meeting of the State Society last month, and while it is referred to at some length in this issue of the REVIEW in the report of that meeting, we shall print the paper in its entirety in the next number. The Minnesota Association gave up nearly its entire programme to surgical clinics in August, and its very conservative Secretary, Dr. L. Hay, closed his report of the meeting by saying that it was the most successful in every way that had ever been held in the State.

In the case of the National Association, other subjects were not neglected; even more could have been considered, since each evening was given up to pleasure. It became only an addition of great value, and when the facilities are better, and the proposed surgical procedures are described by the operator in a paper to be read before the association prior to the demonstration, they will be even more highly appreciated than they were at Omaha.

Taking the early fall meetings in general—especially the American, the New York, the Pennsylvania, and the Minnesota—they were well attended, valuable, and encouraging, and have given an impetus to association work that will exert an influence for years to come.

THE CASE OF DR. HUIDEKOPER.

Dr. R. S. Huidekoper, who was appointed at the outbreak of the war to a high position in the Medical Department, is the

target for the most bitter attacks by the newspapers, army medical men, and politicians. The fact that he is a veterinarian is sufficient to call down the vituperation of the M. Ds., while his education along their own lines is entirely lost sight of. The fact that he has not been engaged actively in human practice does not really make any difference, as the position is almost entirely executive, and the great principles of medicine are as familiar to him as to any other medical gentleman in the army of the United States. But it seems that his additional accomplishment of being a veterinarian is a fatal one. Probably the standing of the army veterinarian is the level from which they take their sighting.

We learn with regret that Dr. Huidekoper has tendered his resignation and is about to return from Port Rico. We trust that when he arrives in this country he will demand an investigation, and those medical men who have maligned him should be compelled to substantiate their charges. If the basis of their malignity rests upon simple prejudice against a profession which is in every sense the equal of their own, they should be exposed to the odium which is theirs by every reason of human right.

R. R. B.

The appointment of Dr. R. S. Huidekoper, of New York, as Division-Surgeon, First Army Corps, with the rank of Lieutenant-Colonel, is being severely criticised by several high army officers, army surgeons and chaplains, and the press all over the country has joined in an attack upon his person and work. We are far from believing that Dr. Huidekoper's appointment was wise or even just, because he had practically abandoned the medical profession and had devoted himself entirely to veterinary practice during the last eighteen years. Thus his place belongs rightly to an active member of the medical profession. But every right-minded veterinarian must feel with indignation the wild and vicious manner in which Dr. Huidekoper's case is referred to by certain army officers and the press. Thus, General Sanger is reported to have said to Secretary of War Alger,

while at Lexington, Ky.: "Your chief cook and bottle-washer down there (I refer to Dr. Huidekoper) was nothing but the rankest sort of veterinary surgeon." The New York dailies printed big head-lines, "Huidekoper a Horse Doctor"; "Was Known Only as a "'Vet.," or "Huidekoper Doctored Mules and Cats;" "Wrote a Book on How to Cure Diseases of Cats;" "He Now Kills Uncle Sam's Heroes," etc.

Giving allowance for the sensational needs of the low American press, the contemptible manner in which our profession is referred to in these articles speaks volumes as to our present estimation by the public. Under these circumstances it is about time that we cease airing our grievances in our professional journals only, and that those of us who represent the profession all over the country should publicly resent such ignorant and brutal utterances.

O. S.

ARMY VETERINARY SURGEONS.

The late war has been fruitful of one great thing for the army veterinarian: it has shown him just where he stands with the War Department, and brought to his mind the consequences of his connection with the service in time of international conflicts. Those holding positions in the army are giving the profession some very stirring recitals of just how the service is, and their colleagues on the exterior are becoming aroused at the magnitude of the injustice which is being done the science which is everywhere being recognized as one of the noblest, and the one which is doing so much, not only for the live-stock industry of the country, but for the preservation of human life. The inadequacy of the veterinary service of the army is rapidly becoming notorious, and soon the force of public sentiment will be so great that it will be of signal assistance to those who are pressing veterinary legislation in Congress. Before the late meeting of the U. S. V. M. A., Chairman Turner gave an incredible story of the struggles for recognition, and the persistent disappointments; while Veterinary Surgeon McMurdo supplemented it by humiliating tales from the Western posts. But probably

the letter of Dr. Gerald E. Griffin, of the Fifth Cavalry, now stationed at Huntsville, Ala., published elsewhere in this issue of the REVIEW, will bring the subject more practically before the veterinary public, and cause a blush of shame and outraged manhood to take root so deeply that every reader will feel that it is *his* business to use every exertion to bring about an immediate and radical change in existing conditions. Following Dr. Griffin's graphic description of the service is a pathetic appeal from that true and tried veterinarian, Dr. M. J. Treacy, which is so manfully and humanely portrayed as to touch a responsive chord in the hearts of all who read it.

The REVIEW has been doing what it could for the cause of the army veterinarian for years, and it feels more desire to press the issue now than ever before. If the profession can advance a single step by recourse to its pages, it is theirs wholly and completely.

OPENING OF THE COLLEGES.

During the first week in October almost all the veterinary colleges of America will open their doors for the session of 1898-99, and reports from a number of them indicate that there will be a healthy increase in attendance over the past few years. There are very few (two or three) which do not require a three-years' course, and the graduates from those who adhere to the short course are so restricted in their liberties when their diplomas are received that the numbers who are willing to accept them is getting less all the time. It is to be hoped that this is the last session that they will ever open under such auspices. When their sister colleges are doing so much for the elevation of the standard of education, they can well afford to fall in line. There might be an excuse for their remaining without the rule if serious opposition existed; but the field is clear and level; no inducements can be thrown out by other schools except superior teaching facilities.

ORIGINAL ARTICLES.

PARTURIENT PARESIS.

(THE SO-CALLED CALVING-FEVER, OR PARTURIENT APOPLEXY.)

STUDIES AND INVESTIGATIONS INTO ITS CAUSE AND HANDLING.

BY J. SCHMIDT, VETERINARIAN, KOLDING, DENMARK.

*Translated for the American Veterinary Review, by W. L. WILLIAMS,
New York State Veterinary College.*

(Continued from page 401.)

When calving-fever appears immediately before or during birth, the contractions of the uterus and the entire processes of labor have either not yet begun at all or are too feeble as a rule to expel the foetus. This partial paralysis continues after birth and ceases only with the end of the disease. Although the air can gain no admission to the uterine walls until the foetal liquids have been expelled, yet it can hardly be the case with the uterine secretions and their decompositions before or during the feeble preliminary labor-pains.

The development of the toxines must, moreover, have begun before the symptoms appear as well as prior to the recognition of any contraction or secretion of the uterus.

If the disease develops 24-48 hours after calving, neither is the os uteri so closed, nor the uterus found so contracted, as a rule, that the air could not enter on this account.

After an easy birth and after expulsion of the placenta, there exists an evidently greater opportunity for the entrance of air through the os uteri than through the lips of the vulva, because these latter on account of their elasticity quickly resume their contact with one another, so that on this ground alone no materially easier admission of air can ensue in case of gradual, than with a sudden contraction of the uterus. When the vulvar lips have resumed their normal contact, air can only penetrate the vagina at the upper commissure during urination. If,

however, it has already gained admission to the vagina, then it can also readily pass through the partly-open os uteri into the uterus, since the colder air which has reached the vagina can readily displace the warmer air already in the uterus.

So far as the hindrance of the passage of the air to the uterine cavity as a chief element in the genesis of a toxine is concerned, there must occur as a prelude to the disease a contraction of the uterus during the first 24 hours so sudden and vigorous as to exclude all admission of air through the cervix uteri. Such contraction is not found to take place.

When the afterbirth has not been expelled prior to the advent of the disease, there always exists places between it and the uterine walls, where the atmospheric air cannot enter. It must be admitted according to the foundation of the Schmidt-Muhlheim theory, that such cases could afford an excellent opportunity for the development of ptomaines. If, however, importance is to be attached to this condition, then the disease should relatively occur far more frequently when the afterbirth is retained, than is found to be the case. In those animals, where after the advent of the disease the afterbirth has been readily removed, the formation of toxins should cease owing to the admission of air during and after its removal, and the disease should thereupon decline. But this also seems not to be the rule.

In two cases of calving-fever, in which the afterbirth had been expelled, and where, as usual after the outbreak of the disease, there was abundant opportunity for manual exploration of the uterus during the first 24 hours after birth, I caused in harmony with the ptomaine hypothesis, an abundant injection of atmospheric air. I secured control of both patients within a few hours from the beginning of the malady. But not the slightest favorable influence from the pumping in of the air could be observed at any time during the course of the disease; both cows died.

In cows suffering from abortion at an early stage of pregnancy, rapid and energetic contraction of the uterus is fre-

quently met with, and yet calving-fever is exceedingly rare after abortion. Seven colleagues with whom I have conferred do not recall having seen the disease after an abortion. I have myself seen but two cases, two months prior to the completion of the normal duration of pregnancy. The catarrhal inflammation* of the uterine mucosa, before and after abortion, in connection with the rapid contraction of the uterus, should, moreover, it would seem, furnish both the material and the disposition for milk fever. It is also universally recognized, as previously remarked, that parturient collapse occurs very largely among well-nourished, good milk cows. It is incomprehensible how high feeding before calving and a heavy secretion of milk after should produce a tendency to the formation of toxins in the uterus.

It is further generally admitted that the malady is more rare in regions where the soil is light as well as among cows of the beef strains; consequently it is difficult to understand why the development of ptomaines in the uterus should not occur with equal facility among such cows as among well nourished cows of the dairy breeds.

It is moreover quite improbable, that the formation of a toxin in the uterus should suddenly cease after a course of 24-48 hours, at which epoch the patients frequently recover without the use of antitoxins or antiseptic therapeutics. The lochia indeed decreases less rapidly, and the uterus gradually closes more and more and obstructs in that way complete aeration, so that one of the chief conditions for the formation of ptomaines must still be present in a higher degree than before, but still at the same time the disease abates.

At least there remains to be explained by this hypothesis the fact that calving-fever almost never occurs in primipara, that is, in heifers.

There is consequently a succession of factors, which contradict the thought that parturient paresis has its genesis in a too sudden contraction of the uterus and a consequent obstruction

* B. Bang Maanedsskrift, f. Dyrlarger, Bd. 8. S. 152.

to the ingress of air which leads to ptomaine formation in the uterus. On the other hand, Stockfleth* could have been more correct, if he had not sought a too rapid, but, on the contrary, a too slow contraction of the uterus. He is indeed more and more impressed with the view that the most prominent symptom of paresis arises from a poison, which is elaborated in the uterus from putrefying tissues, liquid excretions, blood clots and foetid gases, and that these products are absorbed into the blood chiefly through the vessels of the massive, denuded placentules, which are to be viewed as multiple fresh wounds. The causes favoring this may consist of all of those factors, which can serve to prevent a vigorous contraction of the uterus, as: taking cold, overloading the stomach, constipation, change of food. Were this, moreover, the case then must the malady occur most frequently in cows which fail to expel the afterbirth spontaneously, and, above all else, in those cases following dystokia where, frequently, vigorous professional interference becomes necessary, in which cases it is not possible to entirely avoid superficial abrasions of the uterus. But in relation to the frequency of these cases of dystokia the malady attacks these animals very rarely, and we are perforce obliged to exclude from this list those cases in which the afterbirth is not expelled because of the early advent of the affection.

On the contrary, it occurs that calving-fever supervenes with special frequency after easy births and among cows in which the afterbirth is spontaneously expelled or is at least very readily detachable and which therefore offers no special opportunity for the elaboration of putrefactive material.

Besides having accepted the correctness of such a view, we must confidently expect favorable results from antiseptic irrigations. This, however, has not been realized. I have used irrigations of carbolic-, creolin- or lysol-water in numerous cases, especially in those where the afterbirth required to be detached, but also in many other instances without being able to perceive any such favorable influence.

* Tidsskrift for Veterinarer I. R, Bd. 18, S. 382.

There are numerous other objections which can be brought up against the doctrine of a toxæmia, with the uterus as the source of the poison. But I think that after the foregoing one is already warranted in holding that this hypothesis also is untenable. Its strongest evidence exists in the symptoms, which make it quite probable that the affection has its origin in the absorption of a substance that acts as a poison in the blood. The point of origin of the toxin can, however, more readily be elsewhere than in the uterus.

Finally, it may be held that the disease is due to the invasion of some form of micro-organism as yet unidentified.

We constantly see that the most diverse maladies which formerly we could scarcely think of attributing to bacterial origin, are proven now to be due to the invasion of such parasites. It need not follow either that if due to bacterial invasion the disease should be more frequent in certain herds. For several bacterial affections are known as, *e. g.*, the pyelo-nephritis of cattle, the infectious nature of which can scarcely be doubted, and yet it occurs in sporadic cases only.

Nocard* made culture experiments with fluids and tissues from various parts of the body in parturient paresis; these all gave, however, with the exception of those from the uterus, negative results. In the uterus Nocard found various bacterial forms, especially staphylococci. But he did not show that they had any etiological relation whatever to milk fever; according to Lignieres† also the white and yellow staphylococci generally occur on the mucous membrane of the uterus of sound animals. The most probable way by which a milk-fever bacterium could invade the body during or immediately after birth would be through the womb. Against this view many of the arguments against the ptomaine theory are equally effective.

The invasion of pathogenic bacteria through the uterus seems to be excluded by the course of the disease, namely, in consideration of the fact that numerous cases recover after a

* *Recueil de Medecine Veterinaire*, No. 1896.

† *Schweiz. Arch. f. Th. Bd.* 38, S. 285.

couple of days, and especially the oft-occurring sudden recoveries; for if such a pathogenic bacterium became parasitic in the uterus it would scarcely lose its virulence in so short a time.

The causative bacteria could also possibly be one which usually has an existence in the body and be one of the many forms which normally occur in the alimentary canal, and which, through the event of an exciting cause, during or after birth, find a favorable opportunity for acquiring a pathogenic character.

It is very improbable, however, that an exalted milk secretion, which produces so effective a disposition to calving-fever, could bring about such an exciting cause, for each is indeed equally dependent upon normal digestive functions. And since the uterus becomes in part functionless after birth, it cannot well induce digestive derangements. For, as we have already seen, no such changes in the circulatory functions occur as could exert any profound influence upon other parts than the genital organs. If the disease could have its genesis in any form of bacteria normally existing in the alimentary canal, it is highly probable also that now and then the affection would occur independently of birth, with which act it is however as a rule connected.

We can also attempt to trace the location of such pathogenic bacteria to the udder. In severe and still more in apparently light cases of acute mastitis there does indeed occur now and then concurrent affection of other organs similar to those observed in calving-fever. Especially is this true of the nervous system and the digestive organs, which indicate their sympathy through more or less evident paresis, foetid diarrhoea, or firm crust-like dung mixed with mucus.*

It can scarcely be doubted that the paresis in such cases is due to poisonous products derived from tissue changes taking place in the udder, but whether these products are the result of

* *Vid.* H. J. Tobiassen, *Maanedsskrift f. Dyrlager*, Bd. 8, S, 94 and L. C. Villumsen, *daselbst* S. 243.

bacterial or other pathological affections in the mammæ, must first be more accurately determined.

Prior to the advent and at the commencement of calf fever the udder is frequently found somewhat swollen and tense; possibly a specific calf fever germ could be the cause of this, with corresponding slight local reaction, as well as the cause of the above-named mammitis with paralysis. But against an accidental bacterial invasion of the udder as a cause of parturient collapse must be repeated the objections already raised to a similar bacterial invasion of the uterus, in that the disease occurs preëminently in good milk cows and after easy births, etc., and are not therefore capable of being harmonized. Bacteria, which would quite incidentally invade the udder through the teats, must find exactly as good opportunity for their development in one cow as in another when an exciting cause has once framed the way. Especially would such bacteria call forth those changes in the mammary secretion which could be certainly recognized clinically, and the disease would not as a rule subside so rapidly as is frequently the case.

As already alleged, the character of the symptoms indicates that calving-fever is due to a toxic substance taken into the blood. A reasonable argument for this view is found in a comparison of the symptoms of this malady with those of over gorging (plenalvia) in cattle. I have been strongly impressed for many years with the great resemblance of these two diseases of cattle.

Whether a cow breaks loose in her stall, or the keeper in over-indulgence feeds her with rich food-stuffs, oats, barley, rye meal, etc., as long as she can eat, or if she escapes from the pasture and gets into a grain field, preferably getting into a green oats field, or finds a pile of green buckwheat or green turnip tops, there will always ensue, if she is sufficiently hungry and has enough time to bolt without hindrance too large a quantity of food, a train of symptoms which offer a remarkable resemblance to parturient paresis.

For the purpose of illustration I will take from my note

book two cases of the above diseases and place them opposite each other, with their history, symptomatology, and course :

OVERFEEDING.

The cow had broken loose on the day before yesterday and had eaten from the feed-box about 11 kilograms of crushed corn, oats and barley.

First day after overfeeding.

The cow was lively, her movements normal, she could kick freely with her hind legs, had appetite, but was allowed no grain and only a little water.

The excrement was fluid.

Second day.

In the course of the day the cow showed constantly increasing illness, would neither eat nor drink, tottered and after a time could not get up without help.

If assisted to her feet she stood with her head and rigid neck pressed against the wall in front of her and soon fell down again. She lay mostly with her head bent around to the side.

The excrement was hard.

Third day.

The condition almost like yesterday. Only a few pellets of hard dung, covered with shreds of mucus, were expelled.

The cow is not tympanitic, nor appreciably more gaunt than before.

Temperature 37.3°.

Fourth day.

The cow had defecated abundantly during the night ; the fæces were moist, mixed with grain. She readily gets up, and can move about without staggering. She has eaten some straw and shows great desire for water.

CALVING-FEVER.

The cow calved day before yesterday and is a good milk cow.

First day after calving.

The cow was lively, the attitude normal, appetite good. She gave large quantities of milk.

The excrements were normal.

Second day.

This morning the cow could only arise with difficulty and did not wish to either eat or drink. Though she arose several times without aid, she soon staggered and fell down again. After noon she could not be placed upon her feet, she ordinarily lay languid, with her head bent to the side and occasionally threw her head about.

No defecation.

Third day.

More comatose. The head bent to the side. In the rectum some fæces had accumulated in little hard, slimy pellets.

Temperature 38°.

Fourth day.

The cow had defecated freely during the night and lay most of the time with the head and neck in the normal posture. She had drunk some water and eaten a few carrots. This morning she got up, trembled somewhat at first, which, however, did not last long. In the course of the day she acquired more appetite and by afternoon was wholly recovered.

Every veterinarian will find in his casebook records of cases analogous to the foregoing. There exists a striking resemblance between these two cases. The course is not always so similar ; that rests largely upon the degree of severity acquired by the one or the other affection.

In overfeeding, the mechanical over-distension of the rumen is of as little significance as in milk fever. That is, the rumen in the course of a brief time becomes soft and flabby. The symptoms of disease also do not appear concurrently with the highest stage of rumenal distension. A day, or even two, generally elapses after over-feeding, much as in milk fever before the disease becomes apparent. In sheep I have likewise often noted a more or less marked paresis after the use of a very liberal quantity of green rye. When sheep have been confined for a time to dry food in winter and are then turned into a pasture, they sometimes find their way to a rye field and ingest so much of the succulent food, that besides serious indigestion, paresis also ensues, in some cases in the posterior parts only, in others extending to the anterior limbs.

In the latter cases, where the paresis has become so extensive, death frequently follows.

(To be continued.)

OSTEO-POROSIS.

BY GEO. H. BERNS, D. V. S., BROOKLYN, N. Y.

A Paper read before the Eighth Annual Meeting of the New York State Veterinary Medical Society, Sept. 14-15, 1898.

In 1890, before the Long Island Veterinary Society, I had the privilege of reading a short paper on "osteoporosis," which was published in the AMERICAN VETERINARY REVIEW and the *Journal of Comparative Medicine and Surgery* at that time. In this paper we briefly considered the history, symptoms presented, differential diagnosis, usual unfavorable terminations, pathological anatomy as described by Williams, Vurnell and others of England, locations of stables and conditions under which most frequently found, and we concluded by venturing the following theory as to its probable causes :

"Considering the cases that have come under my observation, and more particularly the conditions and location of the stables in which these cases were found, I cannot help but con-

clude that a specific germ, vegetable or animal, or perhaps a gas, the development or generation of which is favored by certain soils and certain conditions, are the most probable causes, and that this substance, whatever it may be, finds its way into the body of animals, acts specifically on the osseous system and causes degeneration of a destructive character. From our present knowledge it would be folly to attempt treatment ; prevention, however, should be aimed at, and during the last six months I have made an effort to have all animals, showing the slightest suspicious symptoms of osteo-porosis removed to other stables, and in all stables where the disease appeared repeatedly, I have had the floors taken up and two or three feet of urine- and manure-saturated soil removed, the old flooring boards and sleepers carefully cleaned and disinfected, and a new supply of good, fresh sandy soil put down before the floors were replaced. In cases where it was possible to have the floors raised twelve or eighteen inches from the ground, I have strongly advocated to owners the advisability of doing so. As these preventive experiments have been tried by me for the limited period of six months only, I am not prepared to say at this time that they are of any special benefit."

During the last eight years a very large number of cases have come under my observation, and the opinion expressed as to the infectious or possibly contagious character of the disease, I think has been to a large extent confirmed.

As veterinary examiner to the Brooklyn Retail Grocers' Association for over fifteen years, I have had a most excellent opportunity to study this disease among coarsely-bred small draft-horses kept under conditions seldom met with in any other line of practice. These horses as a rule are bought at the age of six, well fed and cared for, but in most cases kept in small one-story brick or frame structures, without any sewer connections or proper ventilation, with manure holes frequently in a corner of stable and generally situated in the back yard of a corner grocery store.

The Brooklyn Retail Grocers' Association is an incorpo-

rated society with a membership of over one thousand; each member owns at least one horse and most all of them have their horses protected by insurance in their society.

Brooklyn grocers as a class do not believe in swapping horses, therefore when a young animal finds its way into a grocer's stable the chances are that he will remain there as long as he is fit for work and will be penned up in a small single stall with hardly room to lie down, and compelled to inhale the close atmosphere contaminated with foul-smelling gases, and no doubt millions of microscopic organisms, generated by decayed wooden floors and the damp urine and manure-saturated soil under the floors from eighteen to twenty hours each day.

Among these horses I have found osteo-porosis extremely prevalent, and out of a total mortality according to the records of the society of from four and one-half to five per cent. per annum, one and one-half per cent. is caused by this disease alone, the victims either dying from exhaustion when down and unable to rise or being destroyed as unfit for further use. I believe I am safe in saying that from five to six per cent. of all the grocers' horses in Brooklyn, kept under conditions described above are suffering from osteo-porosis in more or less advanced stages. I know of several one-horse stables of this kind in which two or three horses, which were examined by me when purchased and found in good general health, developed this disease successively within a year or two.

Now, let us for a moment consider the existence of this disease among horses kept in large, airy, well-ventilated and properly drained stables, which are obliged to spend from eight to twelve hours in harness and are therefore out in the open air.

Sixteen years' experience as veterinarian to the stables of A. and S., a large dry-goods house in Brooklyn, keeping over one hundred and twenty-five head of ordinary common-bred delivery horses, has not revealed one case of osteo-porosis. During my ten years' connection with L. and S., owning a stable of one hundred and fifty heavy brewers' horses; fifteen years' connection with O. and L. stables of about sixty head of brew-

ers' horses, and nineteen years' connection with J. H. B. Co.'s stables of about ninety head of brewers' horses, not a single case of osteo-porosis has presented itself in any one of these stables during all these years; and I could enumerate twenty-five or thirty more first-class stables in Brooklyn in which from five to twenty-five horses are kept and no osteo-porosis has ever developed.

During the last seven or eight years in all cases of osteo-porosis which developed in small and badly drained stables, I have had the floors ripped up, the soil under floors removed to the depth of several feet, new clean soil or coal cinders substituted, new sleepers and floors put down, stables ventilated, manure pits closed up and placed outside of buildings, etc., with extremely gratifying results. In stables so renovated in which two or three horses had developed big head successively in three or four years, no more cases have appeared since these simple sanitary measures were established.

Again, I have never seen a case of osteo-porosis recover if it was kept in the same stable in which it had developed the disease; but send him away to pasture or to another stable in a distant locality, there is, according to my experience during the last eight years, at least a chance for a good serviceable recovery.

Some of our best authorities and most careful observers and investigators, as Friedburger and Fröhner, of Germany, W. L. Williams and Faville, of this country, and several others, regard osteo-porosis as identical with rachitis and osteo-malacia in its pathological anatomy and perhaps justly so; but as both of these conditions are supposed to be caused by defective assimilation or a lack of food containing lime in sufficient quantity, I cannot understand how a bone which has been fully and regularly developed in a colt, remaining in a perfectly healthy condition after the animal is fully matured for a number of years, should become enlarged to two or three times its normal size, as is frequently the case with the rhami of the lower jaws and facial bones in osteo-porosis, by simply a want of earthy material

in the system. I should think that a deficiency of these constituents would rather tend to produce a diminution in size, and, as is the case in osteo-malacia in adults, softening of the bone, it seems to me that it requires something that acts as an irritant specifically upon the osseous system, causing metastatic inflammation and a peculiar enlargement and destructive degeneration which is always present, and until this matter is thoroughly cleared up by some of our enthusiastic, pains-taking, and highly esteemed investigators, I shall continue to remove my patients to other localities, if possible, and maintain the strictest sanitary precautions.

EFFECTS OF AN IMPURE SUPPLY OF WATER.

BY WILSON HUFF, V. S., ROME, N. Y.

Prepared to be read before the New York State Veterinary Medical Society.

We are in almost absolute ignorance as to the effects of an impure supply of water on the health of animals; the general impression that any water is good enough for horses and cattle to drink has perhaps to account for this state of affairs. There can, however, be no doubt that as precise investigations proceed and greater care is shown in the inquiry into, and accuracy of, examination of the causes operating in producing disease among animals, impure water will have its legitimate share allotted to it. Of one thing we are convinced: that however inert impure water may have been to animals in a wild state, the more we subject them to an artificial existence as the result of civilization, the more we remove from them the immunity they may have possessed against common causes of disease and the greater the liability is there for causes which originally may never have existed, to become developed. What are the substances in water which are liable, then, to provoke disease? We have animal organic matter, vegetable organic matter (particularly that of marshes), the germs of specific diseases, and some of the salts.

Commencing with the latter first, we know the result on

the digestive organs of the horse receiving a large quantity of lime in its water. Hard water undoubtedly produces a derangement of the intestinal canal, and sympathetically of the skin. The harsh, staring coat of horses receiving hard water rapidly disappears when a softer water is supplied. The amount of hardness in water which will produce this derangement of the intestinal canal has not been accurately determined: but from 8 to 10 grains of lime per gallon has in many cases been found injurious.

Water impregnated with sulphurous acid gives rise in cattle to a number of serious symptoms and to diseases of the bones. Rossignol states that water highly charged with calcium carbonate and sulphate was found to give rise to exostoses in horses, and that pure water being given the disease ceased. In *The Veterinarian* Dudfield states that young horses have been attacked by bony tumors on their limbs, the result of using water charged with calcareous salts. An excess of sulphate of lime in some well-water is supposed to have caused an epizootic among the horses of a French regiment of cavalry; on changing the water-supply the disease ceased. Butyric acid, one of the results of the decomposition of organic substances, has been known in combination with lime to produce diarrhœa in man and animals. During the cattle plague in Dresden, some animals were buried from 10 to 12 feet. During the next year water from a well 100 yards away had a putrid odor, and contained butyrate of lime. Cystic calculi among animals, particularly sheep, have been attributed to the excessive hardness of the water. Calculous diseases are more common in the limestone districts than in any other. Ulcers of the skin in man, particularly that known as Delhi boil, have been supposed to be produced by the drinking water. We may have reason to believe that bursatee, the analogy of Delhi sore in man, has been produced by the agency of water, though in what way this acts I am not prepared to explain. Goitre has been observed among horses and mules from drinking water well known to produce goitre in man. The impregnation of water by sewage

has undoubtedly some effect upon animals. Mr. Stevenson, veterinary surgeon of Newcastle-on-Tyne, regards it as the most prolific source of abortion in cows, and abortion in ewes has been attributed to the same cause. (*Journal of the Royal Agricultural Society of England.*)

We have no idea how much it may be answerable for cases of intestinal irritation, such as diarrhœa; or of obscure outbreaks of disease which we read of from time to time. It seems at least only rational to assume that it must have some evil effect, and as our knowledge progresses we shall have outbreaks of disease clearly attributable to this cause. We have at least clear grounds for stating that most of the specific diseases from which animals suffer may certainly be communicated through the water supply. I need only instance glanders, foot-and-mouth, cattle-plague, anthrax, and perhaps pleuro-pneumonia.

The late Veterinary Surgeon J. H. Steel alluded to the singular form of relapsing fever in equines, so thoroughly worked out by that gentleman, which he considers to have been introduced by impure water. All the animals attacked were watered at one tank and any fresh ones brought to it were certain to be affected.

How far cases of sore throat, particularly that known as malignant sore throat, may be due to impure water, we have no knowledge.

Lastly, water may be the medium, and perhaps in animals the most common medium, for the conveyance of the ova of parasites: tape worms, liver fluke, round worms, and thread-worms are undoubtedly conveyed in this manner.

Leeches may find their way into an animal's nostrils through water, producing great inconvenience and hæmorrhage. The amount of organic matter in water given to animals to drink is often very high. I need only allude to the water-supply of farm-yards from pools and ditches: the water is stagnant, putrid, swarming with animal and vegetable organisms, the result of the impregnation with animal excreta and farm-yard refuse.

The flesh and milk of animals receiving water of this description has often a bad taste and a peculiar odor.

The poisoning of animals from drinking the water of an Australian lake is recorded in Vol. XVIII of *Nature*.

A protococcus forms a scum like green paint from 2 to 6 inches thick on the surface of the lake. Cattle will not drink the water after it has been standing some time, as it gives off a stench of urine and butyric acid. It produces stupor and convulsions. Sheep die in one to eight hours, horses eight to twenty hours. Post-mortem appearances were not remarkable for any great change: the blood is black and don't coagulate, the brain is congested.

Gentlemen, I have entered rather fully into the subject of water, for the reason that I am persuaded we have many diseases affecting horses and cattle which are due to its influence. There can be no doubt that for the full enjoyment of health an unlimited and pure supply of water is necessary; and though the effects of a bad supply may not produce in many cases any positively hurtful effect such as we see, yet, it must be a means of exposing the health of animals to the risk by lowering the tone of the system and rendering them more susceptible to contract zymotic poisons when these are present.

A SIMPLE TEST FOR THE DETECTION OF ALBUMEN IN URINE.

BY PIERRE A. FISH, N. Y. STATE VETERINARY COLLEGE, ITHACA, N. Y.

Read before the Eighth Annual Meeting of the New York State Veterinary Medical Society, Sept. 14-15, 1898.

Among those agents which have the property of coagulating or precipitating albumen, alcohol holds a prominent position. Its use in the detection of albumen in urine does not seem to have been practised very extensively, if at all.

The following tests, with alcohol, have been tried upon urine containing albumen, and upon control solutions of albumen in distilled water. In one set of experiments some dry

albumen from blood was dissolved in the water; in another set, some blood serum was added to the water. (The proportion of serum-albumen to the serum is approximately 1 to 10.)

If the alcohol be added to normal omnivorous urine a precipitation of the phosphates will occur; the addition of a few drops of nitric acid will cause their disappearance. If the urine contain albumen and the nitric acid be added after the alcohol, the precipitated albumen will remain, the phosphates having gone into solution.

In order to determine the delicacy of the tests, the following solutions were prepared and tested: Solutions of dry albumen from the blood were prepared as follows: 1 part of albumen to 1000 parts of water, 1 to 2000, 1 to 4000, 1 to 8000, 1 to 16,000, 1 to 32,000, 1 to 64,000. The addition of the alcohol alone caused precipitates up to 1 to 32,000, although in the latter the precipitate was only just perceptible; after the addition of the nitric acid, the precipitates were less dense and had disappeared in the 1 to 32,000 tube, due probably to the formation of acid-albumen and going into solution. After heating, the appearances remained about the same. The tubes were left in place over night and when next examined the precipitates were more distinct, and a precipitate had appeared in the 1 to 32,000 tube and even in the 1 to 64,000 tube small flecks of albumen could be detected in suspension.

The experiment was repeated in a little different form, merely substituting some blood serum for the dry albumen. Ten cubic centimeters of the serum were added to one liter of distilled water, which gave, approximately, 1 part of serum albumen to 1000 of water. The proportions were arranged as in the preceding set of experiments, and the same results were obtained.

Two other sets of experiments were performed to compare the relative delicacy of nitric acid and alcohol. The alcohol gave a precipitate in the 1 to 32,000 tube and the nitric acid a precipitate in the 1 to 16,000 tube.

The effect of adding alcohol after removing the phosphates

was also tried ; some ammonia water was added to omnivorous urine to precipitate the earthy phosphates (calcium and magnesium). The addition of the alcohol to the urine, after the removal of the earthy phosphates by precipitation and filtration, gave but a small amount of precipitate as compared with the original urine. This precipitate was evidently composed of the alkaline phosphates (sodium and potassium), which are insoluble in alcohol. After the removal of both *earthy* and *alkaline* phosphates, no precipitate occurred, when alcohol was added.

The sulphates and chlorides of potassium and sodium are converted, by the ammonia water used to precipitate the earthy phosphates, into the corresponding salts of ammonium, and these are soluble in the alcohol diluted by the urine.

The test, in brief, is as follows : Add to the suspected urine two volumes of strong alcohol. The fluid will become cloudy and a precipitate may form ; add a little nitric acid and heat. If the precipitate disappears it is composed of the phosphates ; if it remains, it is albumen.

It would seem from the experiments performed, that neither alcohol nor nitric acid alone can be depended upon for strictly accurate results ; but that a combination of the two, as proposed in the above test, is a distinct advantage,—the alcohol to prevent or lessen the tendency for the formation of acid-albumen, and to obtain a more delicate test than can be obtained from nitric acid alone ; the nitric acid to keep the phosphates in solution, and also by acting upon the chlorides and sulphates to put them in a more soluble form in the urine-diluted alcohol.

Mucin is also coagulated by alcohol, and urates may be deposited after the urine has stood for a time. These should not be confused with albumen, since they disappear upon the application of heat, while albumen is coagulated.

HAVE YOU done your duty to your profession by inducing some non-reading veterinarian to subscribe for the REVIEW? If not, begin at once. We will make them thankful to you.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

A PECULIAR COMPLICATION INDEED.

By J. B. HOLLENBECK, V. S., Salem, Ohio.

On May 10th I was called to see a three-year-old heifer of the Holstein-Friesian breed, and mostly white in color. When found in a large pasture she was straining violently, to expel a foetus. On examination I found a thigh and croup presentation; and from the condition of foetus it must have been dead for some time.

There being no relaxation of the gluteal muscles, it made the vaginal passage so small that there was not room enough for more than one leg of the foetus and my arm; but with the aid of the parturition shears I was able to take a piece at a time, until the shoulders and head were reached, when the vaginal passage became so inflamed that further proceedings were considered useless, and I recommended the destruction of the animal; but the owner objected, saying he would wait until the next day, when the remainder of the foetus was delivered very much decomposed, as I was informed about four weeks afterwards, when the owner came for me to go and see the same cow, which I supposed was dead. I found her to be a rather strange-looking cow, very poor, and with pieces of dead skin hanging all over her, from the size of a dollar to two feet square; in fact, all the skin on her sides and rump and legs down to her hocks was dead, and I peeled the most of it off, except where the skin was black, which seemed to be all right. In a few places, where the skin was black but the hair white, only part of the hair came out, and the skin remained, but where the skin was white, it and the hair came off, and their place is taken with scar tissue. There did not seem to be any pus or granulations between the dead skin and scar tissue. At present, over four months from the time she was sick, she appears healthy otherwise, and is gaining in flesh.

I would like to know more of the pathology of the disease than that the black pigment in the skin, in spots, resisted the destruction of the hair and skin by the disease.

NOTES FROM CLINICS OF MCKILLIP VETERINARY COLLEGE.

ANÆSTHETICS.

The anæsthetics successfully used and recommended by the department of surgery are :

1. Chloroform for the horse and ox.
2. Ether for the dog and small animals.
3. Cocaine (10 per cent. solution, maximum dose 20 m.) for local anæsthesia.
4. Ethyl chloral spray for dermal incisions.

NASAL POLYPUS.

A nasal polypus occupying one entire nasal cavity from the posterior to the anterior nares, completely occluding the chamber, was successfully removed and favorable results obtained. A piece of the nasal bone three centimeters wide from a line connecting the nasal canthi to the base of the nasal peak, was removed, excepting two bridges 1.5 centimeters wide at equal intervals along the course of the incision.

Through this opening the tumor, which had completely destroyed the turbinated bones, was removed in sections. The hæmorrhage, which was very profuse, was arrested with some difficulty by gauze packing.

Four months later the only evidence of previous trouble is the cicatrix and sunken condition of the nasal region on the affected side.

This case is by no means a new departure, so far as the removal of nasal polypi is concerned, but is very valuable in demonstrating the probable maximum amount of skull which can be removed and successfully healed.

FOREIGN BODY IN NASAL CHAMBER.

By E. M. NIGHBERT, V.S., Assistant State Veterinarian, Mt. Sterling, Ill.

I report the following case because it is interesting and one of rare occurrence. Patient was a grade short-horn cow.

History.—Cow had been in apparently good health until two or three months previous to my call, when the owner noticed a gradual failing in health.

Symptoms.—Emaciation, appetite impaired, and a foetid discharge from the nose. Upon examination I found temperature about normal and a feeble pulse; the frontal bones were considerably bulged out and tender on percussion. I made up my mind I had an abscess of the turbinated bones, and prepared to trephine the frontal sinus, but upon a further examina-

tion through the anterior nares I discovered a foreign body in the nasal chamber. I passed a pair of dressing forceps up the nose, and withdrew a brushy, crab-apple twig about five or six inches in length. I then examined the other side and also found a foreign body, which proved to be a rag-weed six or eight inches in length. I removed it and washed the cavities out with creolin solution and put the patient on a tonic treatment for several days, and a thorough recovery was the result. I cannot account for the way those foreign bodies got there unless it was done while butting and pushing each other backward as cows will sometimes do.

“SANDED.”

By G. E. GRIFFIN, D. V. S., Fifth Cavalry, U. S. Army.

The above heading describes it exactly. An animal deprived of salt, to satisfy his cravings licks the sand around his picket line (in the camps around Tampa, Florida). Large quantities of fine sand are thus ingested, producing irritation of intestinal tract, manifested by dullness of animal and sometimes colicky symptoms. A characteristic and in fact diagnostic symptom is the relaxed and expanded condition of the anus, with straining, accompanied by a small discharge of fæces, covered with mucus, or by small discharges of clear mucus.

Treatment: Bran mash, plenty of salt, abundance of water, and an oleaginous laxative; generally recovers in two days; little danger of serious results, unless inflammation of intestine is established, when patient dies in extreme pain in from one to three days.

CORRESPONDENCE.

HIS NIBS IN THE ARMY.

HUNTSVILLE, ALA., Sept. 16, 1898.

Editors American Veterinary Review:

“Which it is not my style to produce needless pain,
By statements that rile or that go 'gainst the grain;”
But here's that old bugbear, the Army,
With its vets standing out in the rain.

Where to commence to give it to this subject in the ligamentum nuchæ and in a scientific manner with a stuffed club, without exhausting myself too much, and how to escape being jumped on, called a liar, a fool, and an idiot, and having the face of the earth wiped off with my remains, is what is agitat-

ing the hypodermic injection of gray matter I fear I have concealed about my person without a license ; but here goes a fool, preceded by a big D, barefooted, and the angel can take a back seat and a Manhattan cocktail while the wading is being done.

There is always some cheerful idiot to stand up on his posterior extremities and want to know the why and for what this stirring up and ventilating of these old stories. It is only necessary to reply that it's about time that some one would yank this Army Vet business up by the roots and replant it in more congenial soil. And if the odor emanating herefrom is not that of "Araby the Blest," it is because the old thing is undergoing decomposition. His Nibs in the Army is a "Maverick," a motherless, homeless, unbranded thing, and, like that mythological monstrosity, known as a griffin, partaking of some of the properties of the enlisted man, the commissioned officer and the citizen. He is mostly enlisted man, however, and very little of the other two, except a few white hairs on the off hind. So little authority has he that the last recruit joining may with impunity invite him to osculate his posterior elevation at any time, and it lays with His Nibs whether he shall refuse or accept. If he refuses, while the recruit may feel slighted, still he lets it go at that.

His Nibs is appointed by the Secretary of War on the recommendation of a regimental commander, and the regimental commander can recommend a Sioux blanket Indian for the position if he so desires, and it goes. There is an order somewhere about His Nibs being a graduate, but many an order "is born to blush unseen" and waste its gibberish on the circumambient. He is paid \$900 a year, with an allowance of coal-oil and cordwood. He also is allowed quarters, and at this point your Uncle Samuel hastily grabs him by the slack of his kakhies and the rear shirt button and plants him in a little house in the middle of the row assigned to married enlisted men (this is pretty tough in a nigger regiment), where he may obtain a splendid view of the dump pile or the rear end of a troop stable. In addition to this, there are four of the army vets who get \$1200 a year pay, and the same privileges. These fellows belong to the 7th, 8th, 9th and 10th regiments, respectively, and as additional to the \$900 man they are called seniors, for it must be remembered that the 1st to the 6th regiments inclusive have only one man at \$900. Doesn't this simply beat hell, and remind one of the newspaper accounts of O'Hooligan's Strategy Board? During the late scrap there were several volunteer

cavalry regiments organized, and it was found that the law did not provide for the appointment of a vet; consequently one was hired for each regiment by the Quartermaster's Department and sent there under the orders of the regimental quartermaster, and in one case I know of he (the vet) was treated in the most humiliating manner. These fellows receive \$100 a month. There were also hired by the same department several so-called vets to take charge of vet hospitals, but it is just as well to let this slide. They, however, received \$100 a month.

His Nibs packed his saddle-bags, and, like the infernal idiot he is, started with his outfit for Cuba or any old place where the air was heavy with lead, leaving behind him in many cases a wife and children, for whom he couldn't have saved much out of \$900 a year, knowing that if he got killed, and sometimes the fools are hit, his family might go to the devil for all the country cared, for in this case he would be considered as a citizen employee. If he had a leg, an arm, or a section of his anatomy blown away, his name would be Dennis, as he still was a citizen employee, and pension would be out of the question. On the contrary, if he got tired of his job while at the front, and simply quit, he could be tried for desertion and have blazes raised with him. He is subject to the same military discipline that the soldier is, and has to come to the scratch with as much promptness. He is part of the camp and is carried on the regimental return, and makes out his own pay account, the same as an officer, but still he is like the Irishman's watermelon after boiling, "a big nothin'."

Here are a few things about His Nibs in garrison:

He doesn't count on the strength of the regiment. He lives with the soldier on the laundry row. He cannot buy stores from the quartermaster unless he gets the signature of an officer. He has the privilege of buying groceries from the United States. He is never acquainted with the family of an officer except by pure accident. He is considered as an inferior by the officer and as an equal by the enlisted man. He is seldom or never introduced to a new officer joining, no more than is the private soldier. He is frequently dictated to in his professional duties by "shavetail" lieutenants. He never inspects the horses for his regimental remount except on rare occasions. He is never consulted when an animal is about to be condemned; his opinion cuts no ice. He has no authority to check cruelties to animals coming under his observation; if he tries it he may get insulted. He cannot associate with the commis-

sioned officers ; they won't let him ; they don't prevent him, however, from holding high jinks with the soldier. He hunts the society of the jack rabbit on the frontier posts, or shuts himself up within himself. He is not respected professionally by the enlisted man. He is familiarly known as " Dock," same as Flannigan's off-wheel mule. He is never a member of the club (you know what a club is—whiskey, newspapers, billiards and lies, although there are some of them who read and are billiard-players and liars too). He gets \$12 a month in lieu of rent, if there are no quarters vacant, and pays \$24 or \$25. He gets choice of quarters after the regimental staff (enlisted men). He is not allowed to join an officers' mess ; he can " feed his face " wherever else he may. When visiting an outside station his allowance for expenses stops the minute he gets off the train ; they assign him to a troop for grub, for which he has to pay ; he sleeps where he can or sits up. He is not allowed forage for a horse. He is not furnished with a single book except the " Farmer's Veterinary Adviser," by Law—a good book in its place, no doubt. He borrows the " horse medicines " and " veterinary tools " from the quartermaster's department, and such " tools " and such " horse medicines " ! His treatment of animals is frequently changed by troop commanders, who have become " eccentric " from army monotony and reading the " Pilgrim's Progress." He generally keeps his " head shut," or " roars," and gets the worst of it. His farriers, no, not his, the farriers generally, know more than he does, and often his " suggestions " are laughed at. He is never allowed mileage, but is given actual transportation. He is not allowed to transport a library when changing station ; his allowance is 500 lbs., same as a sergeant of staff ; if he has a few books he goes down in his jeans for the freight bill ; the enlisted man, a hospital steward, is allowed a library ; the horse doctor, dern him, is not. His warrant (he gets one) says he is a sergeant-major, but the Adjutant-General says he is nothing, simply a thing, a *tertrum quad*, so to speak. He is the lineal descendant of the old army horse doctor of bottle-and-rag fame. His name is Dennis, without hope, devoid of ambition, a stick, a social outcast, and a good man killed by army usage.

A few things about him in the field :

He is not entitled to a sleeping-berth. When traveling with troops he sits up in the day coach with the soldiery. He is allowed 150 pounds of baggage in field. He is mounted on a government horse in the field. He is not allowed rations ; he

is not permitted to join a mess in which there are officers ; he eats where he can, generally with the band or teamsters' mess ; he pays for this, of course. He tents with some soldier of the regiment ; he is not allowed a tent to himself. He has to come down to the discipline of the camp, although not a military man. He is not entitled to a pension for disability, neither can he retire ; his family is not entitled to consideration by the country if he gets killed. His views on sanitation are never asked, although he is educated along these lines. His " suggestions " as to feeding, watering and salting are smiled at.

He is simply without one particle of authority or influence among men or officers. If he gets sick in the field he pays 50 cents a day to the hospital, for food, they say, when the soldier's ration is valued at \$7.25 a month, and he is not entitled to transportation to his home if he goes there to recuperate. He is not allowed the 20 per cent. increase of pay allowed the soldier during war, neither is he allowed the increase of pay given the officer during war, if he does more than the work of his rank. A man without position or prospects.

A few things I know :

I know of but one of His Nibs' family who has been treated decently in the service. I know one of them who wears a sergeant-major's uniform, chevrons and all, and reinforced by a V S in yellow. I know two or three of them who salute officers when they meet them—not the civilian salute of equality, but the regular " No. 4 " of the service—the salute of the enlisted man. I know one who takes the part of a teamster occasionally, and has taken the part of a nigger servant on occasions. I know there isn't one who is willing to stand from under and take an examination, so that the thing can be improved. I know two of over thirty years' hard service that it is an outrage to allow them to be cast adrift without being provided for. I know of several with fifteen years' service who are no better off now than the day they joined, but a deuced sight worse. I know some who have to get a pass to leave camp. I know the authorities have persistently refused to do anything for His Nibs in the Army, through pure prejudice, and I know that Congress has been influenced by the action of the War Department. I know there are as good men in the army professionally as there are in civil life. And I think that Congress ought to do something for them.

We didn't go to Cuba or Porto Rico and " go up against it," but we " held it down " at Tampa and other bailiwicks of that

ilk until some of us came near passing in our chips with typhoid and malaria. We did it for \$75 a month, and because we wouldn't show the white feather, and we did it because we were Americans, who were possessed of that quality that despises to give in.

We want to be placed on some kind of a plane where we will be recognized and have an influence. We demand that we be taken out of the sink of prejudice and usage, and we assert that as a profession we consider ourselves the equal of any and in any way.

All this may not have more influence than a spoonful of sulphuretted hydrogen in a hurricane, but what is stated above is true, and I am here behind it to substantiate every word of it.

Why am I here? That's what I'd like to know myself.

GERALD E. GRIFFIN,
Vet. Surg. 5th Cavalry.

ARMY VETERINARY SERVICE.*

By VETERINARIANS CORCORAN AND TREACY, 8th Cavalry.

Mr. President and Gentlemen :

You do me much honor, as you do my army colleagues, by the invitation to read a paper on the "History of the U. S. A. Veterinary Service."

The ablest writer, even a romancer, can do little without a basis, and, as there are no records of our services, I fear my efforts will be inadequate and uninteresting.

In the glorious era of the immortal Lincoln, our Army Veterinary Service first saw the light. That great and good man, appreciating the service of veterinarians in the Army, offered them commissions as lieutenants, which they refused, believing themselves entitled to higher rank. Soon afterwards, in 1863, there was one appointed to each cavalry regiment, with the pay of a lieutenant (\$75 per month) and the nominal rank of sergeant-major, to entitle them to allowances, quarters and fuel, etc., but the provision of retirement for disability and long service, evidently contemplated at the time, was overlooked in those exciting and trying times, and has been overlooked ever since.

In 1866, at the reorganization of the Army, four more regiments of cavalry were added, and from the sad experiences of the immense losses of public animals during the war for want

* Read before the U. S. V. M. A. September 6, 1898.

of adequate veterinary service, two veterinarians were assigned to each of the new regiments, one at \$100 and one at \$75 per month, and so it continued to the present time. I will now have to pass over nearly ten years, of which I have little knowledge.

About 1875, Dr. Samuel Going was appointed to the First Cavalry, then stationed at Benicia Barracks, Cal., and the officers of that old regiment received him as a gentleman, and an equal. Very soon, or immediately on his arrival, he discovered and suppressed an epidemic of glanders in his regiment. Though he was badly handicapped by a want of confidence in him on account of his youth, he soon demonstrated the truth of his diagnosis, and won a confidence and respect for the profession that will always continue in that regiment. About 300 horses, with their stables and equipments, had to be destroyed. His career as an army veterinarian was a bright, though a short one, for after the breaking out of the Nez Perces War he sealed his service to his country with his promising young life, on a perilous expedition, with a lieutenant and ten men, none of whom returned alive. His body was afterwards recovered and buried with the honors of war at Fort Walla Walla, Wash.

He was succeeded by R. B. Corcoran. Corcoran was transferred to the 8th in 1886, and was succeeded by Lemay, now of the 7th, and he replaced by Piche, who later retired to a position in civilian life, and now W. Going, formerly of the 7th, and brother of the brilliant young veterinarian mentioned, presides over the veterinary destinies of the old regiment.

The 2d Regiment has always been the friend of the profession, enhanced in the early eighties by the genial, jolly little Humphreys, who cast sunshine on all circles he came in contact with. He also consecrated his young and hopeful life to the service in the line of duty in 1885, and as the pet of his regiment will always have a place in its fondest recollections. Dr. W. V. Lusk now treads in his foot-prints, a progressive and energetic advocate of our cause.

The 3d Regiment I know very little of, except that its present veterinarian, Dr. Waugh, has now for many years given faithful public service.

The 4th Regiment's veterinary service has now been in charge of Dr. Alex. Plummer for about seven years, and as a proof of his proficiency he was selected to accompany Gen. Merritt's expedition to the Philippines, where he now is.

The 5th Regiment is to be congratulated on retaining the

service so long of the able, gifted and generous Dr. Griffin, who is one of our legislative "hustlers."

The 6th Regiment has recently lost the services of our most progressive and untiring worker in our legislative progress, Dr. Turner; in fact, we all miss him sadly, for he spared neither brains, energy nor money for the general elevation of the Army Veterinary Service, and deserves everlasting gratitude. His successor is a man of ability in his profession, and I have no doubt that he will try to keep in the footsteps of his popular predecessor.

The 7th Regiment's veterinary service is now in charge of two very able and progressive men, Drs. Lemay and McMurdo, whose bright records cannot be made more brilliant by anything I can add.

Dr. Holsinger was one of this fighting regiment's earliest veterinarians. He was killed by the Sioux in the Stanley campaign, in the Yellowstone Valley, in 1873. Dr. Tempany, now of the 9th, was also veterinarian of this regiment in 1873. Dr. W. H. Going, now of the 1st, and your humble servant, were associates and colleagues in this regiment in the eighties.

The 8th Regiment has had some brilliant men as veterinarians, but for some reason was not able to retain their services. In 1886 Veterinarian Corcoran transferred from the 1st, and in 1889 I had the good fortune to become his colleague. We have worked in energetic unison ever since, for the general good and elevation of the Army Veterinary Service, and now we are gratified to be ably supported by our colonel, General Bacon.

The 9th and 10th (colored) regiments have recently added still more laurels to their already creditable records. They are represented by Drs. Tempany and MacDonald, 9th, Drs. Service and Forster, 10th. Tempany and Service are each men of more than 35 years' service, and, though naturally enfeebled by age, and the perilous privations of frontier life in those long years, they did not hesitate to respond to their country's latest call, even though disability meant disaster. MacDonald and Foster are so well known to the profession that any laudation from me is unnecessary. They are of considerable army experience and strongly advocate army veterinary progress.

Critics on army matters in the East were recently rampant, if they were but just to us, for only by agitation do we hope for favorable army veterinary legislation.

Some charge the army authorities as being the cause of inefficient veterinary service. Nothing could be more erroneous,

for Gen. Miles is now, and always has been, the greatest advocate of advancing the Army Veterinary Service, as are all other ranking officers of note.

Some other cruel critics libelously charge the *personnel* of the veterinary service as being inefficient, and the cause of the immense annual death and condemnation list. Had those gentlemen been but just and critical in the proper sense, by investigating into the root of this unnecessary loss, it would save me the painful duty of submitting a few of the salient causes of this waste, for except in the treatment of sick and disabled horses, the army veterinarians are seldom consulted on the subjects pertaining to their profession.

Remounts for cavalry and other public animals are supplied by the Quartermaster's Department and purchased by an officer of that department, without any veterinary technical training, assisted by some civilian expert, employed by him, who usually knows about as much and cares less, as he is not responsible, and his job is but a transitory one at best.

Many of the remounts have come from the hands of the "City Sale Stable Artist," fixed up to deceive the quartermaster amateur expert, clipped and shod with polished hoofs, to cover defects of perpetual pavement "pounding." Others are "toppy" from the use of the "overdraw" in buggy use, and probably forced on the market by the bicycle, but in conformation not suited for active cavalry service. A number come to us incurably unsound and many rapidly approaching that condition. At all the military stations scattered over our broad continent, forage is inspected and received by young officers acting as quartermaster (frequently of the infantry branch), who have little, if any, knowledge of its nutrition or quality. Chronic asthma is consequently developed through its indigestibility and mustiness. This is another cause for a large annual condemnation list, for which the army veterinarian is not responsible. A colleague informs me that at a post at which he was stationed the infantry quartermaster would not receive anything but swamp or "slough grass" as hay, for it was "green and good looking," while good upland was rejected. At the same post, a good-natured but too confiding infantry quartermaster received from a smart contractor, through his irresponsible subordinate, a year's supply of hay of so inferior a quality that the veterinarian had to emphatically protest against its further use by reason of diabetes and asthma it produced.

I am glad, gentlemen, that those conditions do not generally

prevail, for at cavalry regimental headquarters closer attention is given to forage supplies. Veterinary medicines, dressings, and instruments are supplied, and I believe purchased, by the Quartermaster's Department. They are antiquated and inadequate and of little use in the modern treatment of disease. They are drawn quarterly, and frequently without reference to the requirements of the veterinarian, causing an annual loss hard to estimate. Should a modern drug be required for any special disease, it can be had only by special requisition on the Quartermaster General, and on its arrival (if it should arrive) the patients are more than likely bleaching on the prairie.

I will impose one more subject on your attention in answer to our critics, viz., horse-shoes and shoeing. Up to 1887 the army regulations on horse-shoeing were as follows: "Horses should be shod at least once a month. The length of the hoof indicates when a horse needs re-shoeing rather than the wear of the shoe. In removing shoes raise the clinches first, lest the crust be torn and stubs left in the horn. Pare the sole until it yields under the pressure of the thumb; cut the walls down until they are but very little higher than the contiguous sole, taking care to shorten the toe if necessary, it being frequently left too long; cut away the bars so as to make a gradual slope from the walls to the bottom of the commissures, which must be deepened; lower and open the heels and take the bearing off them for at least an inch on each side of the frog, so that the walls at those parts will not be in immediate contact with the shoe when first put on. Pay special attention to the removal of the pegs (the hard horny substance which grows down at the heel on each side of the frog and contiguous to it); these pegs are apt to contract the foot or make it thrushy by pinching and narrowing the frog. The frog may be pared to stimulate its growth and the cleft opened, otherwise it is left untouched. If a horse be flat-footed, pare the base or forward part of the hoof very little, if at all, and shorten the toe as much as possible. Forge the shoe to fit the foot; do not let it project beyond the heels; make its lower face perfectly flat. Avoid nailing too far back, particularly on the inside quarter; this is to be especially attended to in the fore foot. Use as few nails as possible. Six are enough for an ordinary fore foot and seven for a hind foot; horses with small feet should be shod forward with five nails only. In driving take care to give the nails an outward direction so that the points be brought low down in the crust. Turn the clinches down so as to be broad

and firm. In rasping them, never rasp the whole surface of the hoof. When calks are used, there should be three, one at the toe, the others at the heel."

After many years' agitation by the army veterinarians against this form of "foot butchery," my present colleague and myself were ordered to meet or report to a board of officers at Jefferson Barracks, Mo., in April, 1887, for the purpose of improving the system of horse-shoeing. After discussing the subject with the board and making recommendations, etc., the following paragraph was inserted in the new cavalry regulations: "In preparing the horse's feet for the shoe, no cutting whatever with the knife is permitted, except when necessary to fit the toe clip. In removing surplus growth of that part of the foot which is the seat of the shoe, use the cutting pincers and rasp. Opening the heels or making a cut in the angle of the wall at the heel, must not be allowed. Flat-footed horses should be treated as the necessity of each case may require. In forging the shoe to fit the foot, be careful that the shoe is fitted to and follows the circumference of the foot clear around to the heel; the heels of the shoe should not be extended back straight and outside of the walls at the heel of the horse's foot, as is frequently done. Care must be used that the shoe be not too small and the outer surface of the wall then rasped down to make the foot suit the shoe. The hot shoe must never be applied to the horse's foot under any circumstances. Make the upper or foot surface of the shoe perfectly flat so as to give a level bearing. A shoe with a concave ground surface should be used. In garrison, at the discretion of the colonel or commanding officer, the horses may be left unshod. Shoes will be fitted and kept ready to be put on the horses."

But the veterinarians received no credit for the improved condition. And, while these do not cover all our recommendations, they are quite a revolution from the former pernicious practices, and, mind you, gentlemen, an immense salary was at that time paid by the War Department to a so-called expert for propagating and perpetuating this dark-age brutality.

It is now more than eleven years since that board met and made its reformation of the regulations, still we have not yet been furnished with the shoes recommended. They still come from the Quartermaster's Department unwieldy masses of iron, with no conception in their conformation to their scientific application as required by regulations. Our horseshoers, while usually well instructed by us, can do little good work with the

material furnished. It is also difficult to retain good workmen on the pay they receive—\$15 per month.

Then our cavalry of at least 12,000 horses, besides artillery and quartermaster animals, of probably a much larger number, are scattered over our vast domain, besides those in our new tropical possessions, with only fourteen regular army veterinarians, and those without sufficient authority to have their wishes or instructions respected.

The station of the army veterinarian is at Regiment Headquarters, where usually only a portion of the regiment is located. Take, for instance, the 4th Cavalry before the recent war, its headquarters at Walla Walla, Wash., with its veterinarian and only two or three troops, while four troops of the same regiment at the Presidio, Cal., and two in the Yellowstone Park, were far beyond the reach of the regimental veterinarian, and this condition applies generally. For this reason alone we should not be regimental employees, but army ones.

The different stations of the army are visited annually by an inspector, and all animals permanently disabled from this time till his next annual visit are foraged and cared for. They are then presented by troop commanders for condemnation, frequently without reference to the veterinarian, while neither the inspector nor troop commander have any pretensions to veterinary attainment. Then a large percentage of these condemnations is for "unsteadiness in ranks," "won't stand fire," "viciousness," etc.

Now, after placing these different items as plainly as it was possible for me to do, you will, unlike our critics, kindly relieve us of the responsibility of their claimed immense annual animal loss, and place it where it belongs, and not on the army veterinarians.

We have now in the regular cavalry at least 12,000 horses. Those at \$150 each, which is about the price paid by the purchasing quartermaster in peace times, amount to \$1,800,000, and, presuming the 25 per cent. annual loss of our critics is correct, \$450,000 would be the amount each year. Then, we have other public animals (artillery and quartermaster) of at least the same number and value. Presuming the same annual loss in those quarters, another \$450,000, or a total annual loss of \$900,000.

It was but recently I had the honor of being connected with a board of cavalry officers in purchasing remounts for my regiment. The price paid, \$100 each, was an emergency one, as suitable horses under ordinary conditions would not be worth

much more than half that figure. Those remounts are more serviceable than those supplied by the Quartermaster's Department, at \$150 each, and are at least *sound*. Then, even at the figure paid, it would mean, applied to the cavalry alone, a difference of \$600,000, or \$150,000 per annum, as applied to "the claimed" 25 per cent. condemnation list.

The forage ration is composed of 12 lbs. of oats, 14 lbs. of hay, and 3 lbs. of straw or hay (for bedding) daily; a great saving could be made on the grain ration, under proper veterinary supervision.

In a mild climate, where grazing is to be had, which is at all frontier posts, during inactive service, and under other conditions, known to the experienced army veterinarian, half the grain ration could be saved in many instances for many months, and with benefit to the animals, while in some cases the full ration will be always necessary. To be within the limits, we will say a reduction of 3 lbs. *per diem* for six months (180 days) on all public animals, $24,000 \times 3 \text{ lbs.} \times 180 \text{ days} = 12,960,000 \text{ lbs.}$, at $1\frac{1}{2}$ cents per lb. (which is a low figure) = \$194,400 annually. Now, while I claim this saving can be made annually by a reduction of grain ration, and with benefit, this reduction should be made only on veterinary advice.

Other large losses might be enumerated, viz., from the purchase by incompetent officers and issuance of antiquated veterinary medicines, etc., from foraging horses after they become unserviceable until the arrival of inspector on his annual visit, from original cost of excessive iron and freight on unwieldy horse shoes supplied, from loss sustained by incompetent inspection of forage, etc., etc. You will naturally ask, how can this immense annual loss be curtailed or stopped? Make the army veterinarian a commissioned, responsible officer, so that he may have an authoritative voice in all those matters; and at least a half million a year will be saved to the treasury of the country. Ah, but, gentlemen, this would be interfering with the sacred prerogative of the mighty purchasing power of the Army. We have labored, argued, agitated and appealed for sixteen years to our law-makers, receiving yearly pleasing promises, until protracted procrastination has made our hearts grow sick. When hostilities were declared against Spain, and nearly all of our colleagues ordered to the front, we surely thought that our beneficent government would give us some protective legislation, and several appeals were made by us to the chairmen of the military committees of both Houses to provide for ourselves

and helpless families in case of injuries or death, without eliciting any reply. We are forced to the front, but cannot get any pension. So far, four of our number have lost their lives in active service, and their families are allowed to starve by an ungrateful government. We are but fourteen, and naturally our cry in the political wilderness of 75,000,000 is too feeble to be heard. So we have come to your powerful professional association to submit our case.

One or two more items and I will close. Beef and other meats for army consumption are received and inspected by young officers, at the different army stations, who do not even assume to know anything on this subject. Other bovine products—milk, cream, butter—are furnished on the frontier posts from cows kept in unsanitary sheds, and subsisting frequently, in winter, on stable refuse, with no veterinary supervision as to sanitary condition or health. Is it not strange that tuberculosis and other fatal accessories to this condition are not more prevalent?

Commissioned officers of the army are detailed to inspect (?) cattle supplied to Indians by contractors, for consumption. Pardon my dropping from the serious to the ludicrous. At a post in the Northwest, situated on an Indian reservation, an old feeble army chaplain, recently appointed, who likely never saw a herd of cattle before in his life, has been for some time the inspector (?), though stationed at the same point is one of the oldest veterinarians in the army, but he had to be ignored because not commissioned. Another commissioned officer of the army, whilst inspecting Indian cattle, was approached by a practical joker, who took him aside and in confidence informed him: "Captain, there is not one of those steers that can eat grass, they haven't got a front tooth in their upper jaws. Now don't give me away." The officer ordered a steer caught and cast. There was not an upper incisor to be found, two, three, four, five and six more were examined, with the same result. He condemned the whole herd. It is not related what the final result was.

Humanitarians, one item for you, and I close. Faithful old cavalry horses condemned for old age, and too often suffering from acute painful diseases, are sold, like all others, at auction, and purchased for a paltry sum, having to wind up their miserable existence under new, exacting and brutal masters, when they should be humanely destroyed for humanity's sake.

Gentlemen, our history inadequately presented, now comes to

an end. In a very short time Congress reassembles. A bill for the reorganization of our increased army will be introduced. Will we again be overlooked? Will you, with your permeating influence (for you represent every State in this great Union) permit the occasion to pass without opening a path for your young and aspiring colleagues that will lead to a glorious future?

Of the fourteen veterinarians now in the army, most are of long service. Some are already old men and must soon make way for our growing generation. Of these fourteen, eleven are graduates of some of the best colleges of this continent and of Europe, and of the three non-graduates, two are men of over 35 years' service, which ought to be a guarantee of their competency. The other, my colleague and friend, whose name, often mentioned in this paper, has twenty-one years' service to his credit. Surely those old men, who have fed and fostered our infant science on the plains of this great West, should be provided for in their declining years, and a justice be done the younger ones that is not denied veterinarians in any army in the world.

Gentlemen, you have our doleful, wasteful history poorly placed before you, and we await your verdict. Shall those faithful old men be cast on the cold world in their infirm years, with the dismal prospect of a Potter's field pauper's grave? These men who kindled the first spark of your now glorious science on the perilous frontier, fanned now into a mighty flame by the beaming magic of your powerful influence, that, I trust, will blaze and brighten a way to a prosperous and glorious future for our rising young men, and cast its hallowed light on the retired, and, I trust, happy homes of our old colleagues, where they will peacefully await "taps" from the bugle of the Great Commander.

DIPHTHERIA ANTITOXIN PATENT.

KANKAKEE, Sept. 18, 1898.

Editors American Veterinary Review:

SIRS:—A firm of foreign chemical manufacturers acting as commercial agents for Emil Behring, the noted German bacteriologist, have lately been granted (June, 1898) a patent in the United States which covers entirely the method of producing diphtheria antitoxin serum. The granting of this patent to these foreigners practically gives them a monopoly in the production and sale of this most important therapeutical agent in this country.

That the patent laws of our country are so loosely framed

as to grant this important privilege to any individual or corporation does not speak well for the intelligence of the American people; and that these laws should be changed at once none will deny, so as to prevent in the future any monopoly, either home or foreign, from levying extortion on the people of this country for using medical discoveries which may be considered the common property of the medical sciences.

It would appear from the patenting of the diphtheritic serum that the high professional dignity which has hitherto marked the course of the medical profession in Germany is fast being pushed into the background by grasping commercialism, when Behring, who has always been a recognized leader in that profession, can be induced to engage in the patent medicine business.

Behring cannot with consistency lay claim to being the original discoverer of diphtheria antitoxin serum, because his labors in that direction were largely supplemented by, and in many instances preceded by, the researches of Pasteur, Roux, Nocard, Chaurveau, Kitasato and a number of other investigators in the field of bacteriology and biology, equally as eminent, if not superior to Behring.

A ridiculous feature of our patent laws is that they have granted to Behring and his commercial co-partners absolute rights in this country which had been denied them in their country, Germany. The patent laws of Germany refuse without any exceptions a patent on any medicinal preparation. The American people have long felt the heavy hand of foreign chemical corporations who unscrupulously have exacted enormous sums of money yearly from them for such chemicals as anti-pyrine, salol, etc., which in the country of their manufacture sold at merely nominal prices, owing to the absence of protecting patent laws.

It would appear as if we are to have this patent extortion further fastened upon us, by this granting of a patent on the production of diphtheria serum, although I understand that several of the leading producers of antitoxin serum in this country have decided to contest the legality of Behring's patent in the courts.

Laws which grant patents on medicinal substances are an unmitigated evil, and it should be the duty of every physician and veterinarian in this country to see to it that such laws, so inimical to their interests, should be removed from the statute books.

W. J. MARTIN.

SOCIETY MEETINGS.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The thirty-fifth and last annual meeting of this association—for its name has been changed to the American Veterinary Medical Association—convened in Omaha, Nebraska, on Tuesday, Sept. 6th, at 10:30 A.M. in the assembly room of the Millard Hotel, the meeting being called to order by Dr. D. E. Salmon, President, who in a few well-chosen remarks introduced Mayor Frank E. Moores, of Omaha, who extended a greeting the cordiality of which was not questioned by anyone who heard him. Previously a button had been presented to each visitor which bore the likeness of his Honor, and inscribed with the word "Omaha" on the upper border, while on the sides was the legend, "It is yours; take it home with you." The Mayor said, however, that he hoped the members would not take their new depot, as they had waited so long for it. At the conclusion of his remarks he presented to the association a huge pair of golden keys to the city, with the telephone address of the Mayor's office in large letters stamped thereon. The members were informed that in case of any difficulty with his Irish police force, they were simply to call "No. 55," and he would be to their rescue instant.

Dr. Roscoe R. Bell, of New York, responded on behalf of the association, dwelling upon the importance of the step taken by the association in going so far into the West, emphasizing the relation of many subjects on the programme to the health of the citizens, and inviting the sanitary officers of the city to seats in the Convention.

At the conclusion of the pleasant preliminaries, President Salmon delivered his annual address, which was listened to with rapt attention, as it was overflowing with facts showing the important progress being made in the profession in this country.

The President spoke as follows:

PRESIDENT SALMON'S ADDRESS.

Gentlemen :—The welcome that has been extended to this association by the great city of Omaha, and the prospects for a large attendance of members and other representative veterinarians give promise that this thirty-fifth annual meeting will be one of the important historic points in the life of our organization. Within the remembrance of

some who are now present, the veterinary profession has developed from an apparently insignificant beginning in a few of the Eastern cities until now its representatives are found in all sections of the country. There could be no better demonstration of this fact than the gathering here on the banks of the Missouri River of the many gentlemen, from the East and the West, from the North and from the South, who will contribute to the interest and success of this meeting.

As the executive of this association, I congratulate you upon the knowledge which we have just acquired, that we can meet here, in what many of us have considered a far Western city, and not only receive a cordial greeting, but find ourselves surrounded by sympathetic members of our own profession. And I congratulate the citizens of this great State that there are located here so many competent veterinarians, whose life-work it is, not only to prevent and cure the maladies of the domesticated animals, but to guard the health of the people from the many diseases which they may acquire by contact with such animals or by consuming as food the various kinds of animal products. The veterinarian has evidently made a place for himself on these fertile prairies where horses, cattle, sheep and swine multiply in such profusion and develop in such perfection; but he has just begun his work and the more his plans develop, and the better his efforts and aims are understood the more will he be esteemed and appreciated. In the closing years of this century, which has been so wonderful in scientific progress and achievement, there is nothing more remarkable than the influence which the study of animal diseases has had upon the advancement of human medicine, and the resources which the investigators of this subject have laid at the feet of suffering humanity. The elucidation of the nature of contagion; the establishment of scientific disinfection; the development of aseptic surgery; the introduction of bacterial products, vaccines, animal extracts and antitoxins for the treatment of various diseases are well-known examples.

THE MICROBES OF CONTAGIOUS PLEURO-PNEUMONIA.

The study of the contagious pleuro-pneumonia of cattle has during the past year revealed a realm of life beyond the reach of the most powerful microscope. For years pathologists have searched for the microbe of this disease without success, and now we learn that their failure was largely due to the fact that this microbe is so extremely small that even the perfect microscopes of the present day are not sufficient to enable the observer to make out its form and dimensions. The ingenious methods of investigation which were adopted in these researches appear to be free from flaws, and we must, therefore, accept the fact that there are living organisms far more minute than have heretofore been recognized; and that, indeed, there is a world of life that the microscope is powerless to reveal, just as we have long known of a world that our unaided vision could not detect.

The bearing of this discovery upon future researches is manifest. There are still numerous communicable diseases of which the active cause has escaped the search of our most able investigators. We have here another clue to these problems, and without doubt they will all finally be resolved by the perseverance and resourcefulness of the modern student.

VARIATIONS OF THE TUBERCLE BACILLUS.

The discovery by Dubard of tuberculosis in fish has served to broaden our views concerning this most interesting and destructive panzoötic disease. From a study of the bacillus of mammalian tuberculosis we learned that this microbe requires for its multiplication a temperature between 86 and 104° F., and we concluded from this fact that this germ is an obligatory parasite, unable to multiply outside of the animal body except under special conditions furnished in the laboratory. Later, it was discovered that in the tuberculosis of birds, or avian tuberculosis, the bacillus had undergone a remarkable physiological modification and that it is able to grow all the way from 77 to 113° F. That is, instead of being confined to a temperature range of 18° F., as is the case with the mammalian bacillus, it has in the avian variety acquired the power to multiply through a temperature range of 36° F. The doubling of the temperature range and the ability to multiply at a point nine degrees lower on the scale has an important signification; for, whereas a continued temperature of 86° F. is difficult to realize in nature, 77° F. for days and nights in succession is not infrequent in many parts of the country. Already the question was suggested as to whether it is not possible for the bacillus tuberculosis to live and multiply in nature as a saprophyte.

Dubard's discovery of tuberculous carp, the bacillus from which is able to grow from 50 to 96.6° F., is still more astonishing, and opens a field of possibilities so extensive that it is safer to wait for the positive results of investigations than to speculate as to what may or may not be true. The facts already established are, however, most important. A bacillus which can vegetate at 50° F. can live as a saprophyte without difficulty, if it finds a proper food supply.

The first question that suggests itself is as to the identity of these bacilli, which are so frequent in their physiological requirements. Are the mammalian bacilli, the avian bacilli and the piscine bacilli but varieties of the same species, convertible from one another, or are they specifically distinct? The researches which have already been made appear to warrant the conclusion that the avian and piscine bacilli may be given all the characteristics of the mammalian form by growing them for a sufficient time under proper conditions. Indeed, Dubard is of the opinion that the carp were infected by throwing into the stream in which they lived the excreta and sputa of a human patient affected with pulmonary and intestinal tuberculosis.

Wide, therefore, as is the gulf which separates the cold-blooded carp from the mammalia, or the latter from the hyperthermic birds; remarkable as are the morphological and physiological differences shown by the bacilli from these different sources, we are forced to the conclusion that these differences are superficial, that they vary with the conditions of environment, and that the tuberculosis of the fish, the mammal, and the bird is one and the same disease. Accepting this conclusion that the mammalian bacillus may under certain conditions infect fish and be so modified that it has the vigor to grow at a temperature of 36° F. lower than before; and that, on the other hand, it may infect birds and be so modified as to grow at a temperature 9° F. higher than before, should we not be conservative in adopting the views recently promulgated to the effect that the bovine and human bacilli are different varieties and

that the human bacilli are incapable of affecting cattle? This question is one of great importance to the sanitarian and will no doubt receive your most careful consideration.

RECENT PROGRESS IN THE CONTROL OF ANIMAL DISEASES.

Much has recently been accomplished in improving and adding to the methods available for the control of a number of our worst plagues. It is not many years since Texas fever was one of the most dreaded diseases, both on account of its destructiveness and of the mystery connected with its origin and dissemination. At last this mystery has been cleared away, and we are to-day in a position to formulate more efficacious regulations for preventing this disease than is possible in connection with most others. By regulating the traffic in cattle from the infected district during the warm season of the year; by allowing them to be moved by rail only and for immediate slaughter during that season; by segregating such cattle and disinfecting the cars in which they are transported, the losses from this disease in the Northern States have been reduced to an insignificant amount.

There, however, remained other problems pressing for solution. In the vast district in which this contagion is enzoötic, comprising practically the entire area of six great States and one Territory, more than half the area of four other States, and important sections of two additional States and one Territory,—in this extensive district, vast numbers of young cattle are reared to be sold for grazing. It is very difficult, as you will understand, to confine the shipment of these animals to the short period of two months in the winter season. The magnitude of the interests involved is a continual menace to the quarantine regulations. Fortunately we can now see our way to disinfecting these cattle so that they can be safely shipped anywhere, at all seasons of the year, without conveying the contagion to other animals.

Although these southern cattle carry the microbe of the disease in their blood for months and years after they leave the infected district, nature has beneficently provided that under ordinary conditions it can only cause disease when transferred to other animals by a single species of external parasite—the southern cattle tick or *Boophilus bovis*. With this fact demonstrated, it only remained to discover a practical method of destroying these ticks upon the southern cattle at the time they passed out of the infected district. This, however, was much easier to propose than to accomplish. Many preparations have been suggested and it was reported that one of these when tried killed the ticks immediately and the cattle in fifteen minutes. Other mixtures had no effect upon either the cattle or the ticks. It may now be said, however, that in extra dynamo oil and sulphur we have a dip which kills the ticks with so little effect upon the animals that it can neither be objected to on the ground of financial loss or cruelty. There may be and doubtless will be further improvements made in the composition of the dipping mixture used for this purpose, but the point to be emphasized is that we *already* have a dip which may now be successfully used for this purpose.

There is but one other practical problem connected with the prevention of this disease, and that relates to the immunization of cattle that are taken into the infected district. You all know that the cattle of that

district are immune, otherwise they would contract the disease and die. Doubtless they obtain their immunity by undergoing a mild attack of the disease while they are young, and, if so, why should we not follow the way pointed out by nature and artificially infect young animals that are destined for the Texas fever district? This has been successfully done and it has been shown that the artificially immunized animals were able to resist the disease when taken to the infected section of the country. The principle is thoroughly demonstrated, and it only remains to work out the details of the method, by determining the variations which are required according to the age and breed of the animals and season of the year. We may, therefore, claim with complete justice that the veterinary profession of the United States has not only explained the mysteries of Texas fever, but that it now offers adequate means for the prevention of this disease.

The infectious diseases of swine have long caused such enormous losses that the swine growers have been discouraged and many of them financially ruined, while even the Federal government has been greatly concerned on account of the destruction of property and the menace to an important item of the food supply and of the export trade. Veterinary science has had much to contend with before it could offer a practical and efficient solution of the problem of preventing these losses. It was necessary to consider the vast number of animals liable to the disease and the great extent of territory over which they are distributed; also the relatively small value of each individual and the fact that the losses are caused by two distinct diseases, each of which requires its own specific treatment, while the symptoms are so obscure that it is difficult in the field to distinguish one from the other.

Hygienic surroundings, isolation, disinfection, medical treatment, inoculation and vaccination were all tried without satisfactory results. In individual cases, benefit was undoubtedly derived from the intelligent application of these measures; but the proportion of failures was too great, the success was too uncertain and, as it is to be expected under such circumstances, no general and systematic efforts were made.

Last year some experiments were conducted with the stamping-out system, that is, by killing diseased and infected animals with a view to arresting the multiplication of the contagion. It was shown by these experiments that it is possible to greatly reduce the losses by this radical method; but it requires a large force of men to find all the infected herds in even a single State; it requires a vast sum of money to compensate for the slaughtered animals; and, worse than all, the enforced slaughter and quarantine develops an opposition fatal to the rigid prosecution of this plan of operations over a large extent of territory.

There remained but one resource to which we could turn with hope in the present condition of science. That is, the use of antitoxic serum. The researches made in this direction have shown that it is possible to produce a serum that will immunize animals to both of these diseases, and that will also cure both. This treatment was first tried with small animals such as rabbits and guinea pigs in the laboratory, and, being successful there, was tested late last year with herds of infected swine. Of about 250 animals in infected herds, over 75 per cent. were saved, while in herds not treated 85 per cent. died. This year, the results with about the same number of animals have been even better and the pros-

pects are that over 80 per cent. of the animals in infected herds may be saved by this method. Considerable quantities of serum will be used before winter, and we shall soon know definitely what results can be depended upon.

In antitoxic serum we have a most valuable agent for the control of swine diseases, but it can best be used under professional supervision. The State should regard it as an invaluable addition to its resources for eradicating the disease from our territory. If its application is left to the individual farmer, some will use it, but many more will neglect it; and swine diseases will continue their ravages with slight abatement. If the State adopts it and provides for its systematic use wherever the infection appears, and requires the disinfection of stock yards and stock cars, it will not be long before swine can be raised with safety and profit, and the fifty or one hundred millions of dollars which are now annually blotted out by this scourge, will go into the pockets of our farmers, increasing the wealth and prosperity of the nation.

THE ARMY VETERINARIAN.

You will learn from the report of the Chairman of the Committee on Army Legislation that nothing has been accomplished towards the organization of a proper corps of commissioned veterinarians for service in the army. The Chairman of the Committee on Military Affairs has been favorable to the necessary legislation, but the War Department has persistently objected, and has prevented the accomplishment of this reform which has been urged for so many years by this association. Is it not incredible that in this practical and up-to-date country the War Department should insist upon being behind all other civilized nations in its organization and equipment of this branch of the service? Why do those who control that department object to skilled, interested and responsible officers whose duty it would be to examine and pass upon the millions of dollars' worth of horses that are purchased, and upon the other millions of dollars worth that are condemned as unfit for service? Why do they object to responsible experts who would have the authority to secure proper medicines and instruments for the treatment of sick and disabled animals, and to direct humane and intelligent treatment?

I shall not attempt to answer these questions in this address, but as the press and people of the country are asking for information as to why the same department is antiquated and inefficient in some other respects, it is possible that Congress may yet undertake a reorganization on modern lines. When that time comes, let us hope among other practical features there will be given to the army a commissioned veterinary service that will not only insure honesty, economy, and intelligence in the purchase and treatment of animals, but that will give the veterinarian and his family the same prospects of a pension in the case of injury or death that are enjoyed by other classes regularly connected with the military organization.

CHANGE OF NAME.

You will have an opportunity at this meeting to vote upon a proposition to change the name of this association from the United States Veterinary Medical Association to the American Veterinary Medical Association. This proposition is in line with the growth and development

of this body. There are without doubt some disadvantages connected with an enlargement of the field which we represent, but these will probably be more than counterbalanced by the wider range of our vision and the nearer approach to a cosmopolitan character. The practicability of the plan is indicated by the success of the American Public Health Association which embraces the United States, Canada and Mexico, but there are some reasons why we should not act without careful deliberation. I trust the matter will be thoroughly considered before action is taken.

THE PRESIDENTIAL TERM.

There is, also, a proposition to be voted upon to increase the presidential term from one year, as at present, to two years. I regard this proposition as ill-advised and undesirable. We have had numerous members of this association who should have been honored with the presidency but for whom the opportunity has never come. If we double the length of the term, we lessen by fifty per cent. the chances of every member to gain this distinction, which should be coveted by all. Again, there are worthy members who would like to be president for one year, but who do not feel that they can give the time required by a term of two years. Why should we change the policy of the association and insist that no member can be elected president unless he serves for two years? Finally, if a president is so efficient in the discharge of his duties that the association desires to avail itself of his services for two years, and he is willing to serve for that length of time, it is a very simple matter to re-elect him. These considerations lead me to express the hope that this proposed amendment to the constitution will not be carried.

THE WORK OF THIS ASSOCIATION.

Gentlemen, this association still has a great work before it. Much of the field of animal diseases in this country has never been explored. Concerning the diseases that have been long known and studied, there is still much to learn. We are in the midst of a great public, which is ignorant of the principles of medicine in general, and particularly ignorant as to animal diseases and their influence upon the health and wealth of the nation.

The work of this association must be principally of an educational character. It should begin with its own members, encourage them to study, to think and to write. It should particularly encourage original observation and investigation. It should use its influence to keep the veterinary literature of the country—the journals, the text-books, and the official reports—abreast with the times and equal if not superior to any that are issued in any other country. It should also be active in educating public sentiment.

The citizens of this country, as a body, can be trusted to do the right thing if they thoroughly understand any question. If they have interfered with our work and in some instances apparently turned the hands backward on the dial of progress, it is because the educational work had been neglected, or through a lack of discretion, prejudice and personal feeling have been aroused. Convince the people of the various municipalities that we are laboring to save their property and to protect their health, and it will be strange indeed if we meet with opposition.

The great system of meat inspection, now happily inaugurated, should be carried to perfection, so that the consumer can buy a piece of meat in any market in the country knowing that it has been inspected and that it did not originate from an animal diseased, injured or otherwise unfit to furnish wholesome food.

A system of milk inspection should be developed which will guard against filth, the germs of tuberculosis, typhoid fever and other communicable diseases, and which will make it possible to drink a glass of milk in our cities without serious misgivings as to its effect upon our health.

The animal plagues which now ravage the land, tuberculosis, hog cholera and swine plague, Texas fever, glanders sheep scab and rabies, should be rigidly controlled and eradicated.

More attention should be given to the treatment of the ordinary sporadic diseases, so that the veterinarian shall be prepared at all times to give the animal of his client the best treatment which the present condition of science will permit.

To accomplish all of this programme will require years of work, but it is your legitimate work. Individuals will come and go, but, as an association, the illimitable future is yours. There is no task so great, no achievement so distant, that its prospects need discourage you. Let us labor then systematically, with full confidence that in time all proper hopes shall be realized.

At the conclusion of the President's address it was moved and carried that the roll-call be dispensed with and that a record of the members present be obtained from a book of registration kept upon a table at the entrance to the hall. From this record the following lists are made:

Members Present.—Drs. Anderson, Ayer, Baker (A. H.), Bray, Brenton, Bown, Beechy, Bell (R. R.), Cary, Christmann, Clement, Connaway, Cotton (C. E.), Cotton (T. Bent), Day, Drasky, Dunphy, Edwards, Evans, Forbes, Gibson, Gould, Griffith, Heitzmann, Hinman, Hoskins, Hunter, Jameson, Johnson, Law, Lowe (W. Herbert), Kelly, Knowles, Kolly, Lyford, McBirney, Merillat, Miller (J.), Mitchell, Nelson, Nighbert, Norton, Pearson, Peters (A. T.), Ramacciotti, Reynolds, Salmon, Shaefer, Sprague, Stalker, Stewart, Taylor, Walrod, Ward, Whitbeck, White (T. E.), Williams, Young.

Visitors Present.—W. T. Allen, Philadelphia; V. C. Barber, Lincoln; A. Berstrom, Minden, Neb.; A. M. Blackwell, Omaha, Neb.; A. T. Bowers, Hastings, Neb.; John E. Brown, Oskaloosa, Iowa; L. D. Brown, Missouri; H. M. Burgess, St. Joseph, Mo.; J. W. Byers, Nebraska; J. H. Cock, Ottawa, Kan.; G. R. Conrad, Sabetha, Kan.; S. E. Cosford, South Omaha; B. Fisher, Creston, Iowa; J. C. Foelker, Allentown, Penn.; W. R. Fullerton, Dubuque, Iowa; J. I. Gibson, Denison, Iowa; J. Haggerty, Nebraska; R. R. Hammond, Le Mars, Iowa; S. K. Haslett,

Iowa; W. A. Heck, St. Joseph, Mo.; R. S. Heer, Platteville, Wis.; J. C. Hinckley, Odebolt, Iowa; W. G. James, Shenandoah, Iowa; G. A. Johnson, Sioux City, Iowa; S. H. Johnson, Carroll, Iowa; G. B. Knowles, Glenwood, Iowa; W. F. Knowles, James, Iowa; P. O. Koto, Forest City, Iowa; B. C. Langford, Nebraska; C. B. McClelland, Kansas; Charles A. McKim, Norfolk, Neb.; E. H. Miller, Harlan, Iowa; J. T. Miller, Sioux City, Iowa; S. T. Miller, Iowa; J. C. Milnes, Kansas City, Kan.; W. P. Phipps, Lyonville, Pa.; T. J. Phipps, Pennsylvania; C. B. Robinson, Washington, D.C.; F. M. Roys, Iowa; Hal C. Simpson, Kansas; J. L. Stewart, Oakley, Iowa; J. O. Simcoke, Iowa; Harold Sorbey, Chicago, Ill.; G. A. Scott, Independence, Iowa; L. W. Shipley, Iowa; C. E. Stewart, Chariton, Iowa; H. E. Talbot, Des Moines, Iowa; W. A. Thomas, Lincoln, Neb.; George P. Tucker, Lincoln, Neb.; B. H. Underhill, Media, Penn.; James Vincent, Iowa; A. B. Wilmuth, Iowa; James Wilson, St. Joseph, Mo.; A. C. Woods, Council Bluffs; Leon W. Young, Chicago; A. J. Savage, Colorado Springs, Colo.

Ladies Present.—Mesdames Ayer, Omaha; Allen, Philadelphia; Bray, El Paso, Texas; Day, Lincoln, Neb.; Drasky, Crete, Neb.; Gibson, Denison, Iowa; Hinckley, Odebolt, Iowa; Hoskins, Philadelphia; Johnson, Sioux City; Koto, Forest City, Iowa; Merillat, Chicago; Miller, Iowa; Peters, Lincoln, Neb.; Sorbey, Chicago; Stewart, Kansas City, Walrod, Storm Lake, Iowa; White, Columbia, Mo., and Whitbeck; the Misses Alma and Martha Peters, Chicago; Belle Stewart, Kansas City, and Mary Mann, South Omaha, Neb.

The reading of the minutes was dispensed with and reference made to them as contained in the published report.

The Executive Committee unfavorably recommended the amendment to the Constitution and By-Laws, extending the President's term of office to two years. It also recommended the expulsion of Drs. S. K. Johnson, and J. H. Wattles, for violation of the code of ethics. The charges preferred against Dr. G. E. Griffin by Dr. M. J. Treacy were withdrawn owing to the published letter of Dr. Griffin in the January REVIEW. In the matter of the resignations of Drs. M. A. Piche, H. J. McClellan, L. H. Hemplemann, and G. T. Netherton, tendered at the last meeting, and not accepted because of back dues, it was again recommended that they be not accepted. Also that the resignation of Dr. L. McLean be treated in a like manner for the same reason.

The following applications for membership were favorably reported from the Executive Committee, and under suspension

of the rules, the Secretary cast the ballot of the association, and they were declared elected as members of the association :

- Ray J. Stanclift (N. Y. S. V. C., '98), Americus, Ga.
 John S. Anderson (C. V. C., '94), Seward, Neb.
 A. O. Cawley (A. V. C., '91), Milton, Pa.
 Wm. M. Taylor (O. V. C., '88), York, Neb.
 C. E. Cotton (U. P., '93), Minneapolis, Minn.
 J. R. Young (C. V. C., '87), Omaha, Neb.
 F. F. Hoffman (O. V. C., '85), Brookville, Pa.
 P. D. Coffey (C. V. C., '92), Wellman, Iowa.
 William Thompson (C. V. C., '94), Sioux City, Iowa.
 Jno. J. Repp (U. P., '98), Philadelphia, Pa.
 A. E. Behnke (C. V. C., '92), Milwaukee, Wis.
 T. E. Smith (N. Y. C. V. S., '97), Jersey City, N. J.
 W. A. Shoults (O. V. C., '92), Gladstone, Manitoba.
 John S. Buckley (A. V. C., '96), Kansas City, Kan.
 J. J. Drasky (O. V. C., '94), Crete, Neb.
 A. T. Everett (O. V. C., '78), South Omaha, Neb.
 J. I. Gibson (O. V. C., '87), Denison, Iowa.
 W. J. Tomlinson (A. V. C. '87), Williamsport, Pa.
 Frank C. McCurdy (U. P., '93), Kansas City, Kan.
 W. N. D. Bird (K. C. V. C., '98), Arkansas City, Kan.
 M. M. Poucher (O. V. C., '83), Oswego, N. Y.
 S. E. Bennett (Ohio S. U., '90), Kansas City, Mo.
 S. A. Ward (O. V. C., '94), St. Cloud, Minn.
 Levi P. Beechy (O. V. C., '94), Omaha, Neb.
 H. O. Kannal (C. V. C., '94), Rennselaer, Indiana.
 Fred. Evans (O. V. C., '93), Grand Island, Neb.
 Charles Gresswell (R. C. V. S., L., '75), Denver, Col.
 John R. Mohler (U. P., '96), Milwaukee, Wis.
 H. A. Christmann (U. P., '96), Milwaukee, Wis.
 R. D. Martin (Harvard), Bridgeport, Conn.
 Chester Miller (O. V. C., '93), St. Louis, Mo.
 John D. Sprague (C. V. C., '94), David City, Neb.
 V. Schaefer (C. V. C., '91), Tekamah, Neb.
 H. G. Moore (Iowa A. C., '95), Milwaukee, Wis.
 Edward C. Fox (A. V. C., '98), Baltimore, Md.
 J. W. Griffith (O. V. C., '92), Cedar Rapids, Iowa.
 J. Otis Jacobs (U. Cal., '98).
 R. A. Plummer (C. V. C., '88), Walla Walla, Wash.

The application of G. Ed. Leach, of Wisconsin, for reinstatement, he having paid his back dues, was favorably recommended and confirmed by the association.

The association sustained the committee's unfavorable recommendation of change in the presidential term, and it remains as formerly.

The association confirmed the recommendation to reduce the annual dues from \$5 to \$3, to take effect immediately.

The findings of the committee in the matters of Drs. Johnson Wattles and Griffin were sustained.

The resignation of Dr. W. J. Straughan was not accepted because he was not square with the Treasurer.

The Publication Committee made a brief report, detailing the work of the past year and it was adopted.

The Report of the Committee on Army Legislation was furnished by Chairman Turner, who reviewed the efforts made by this and previous committees, showing the opposition which had developed in the War Department, and hoping that recent charges against the department's efficiency might result in a reorganization of the army, and with it the transfusion of sufficient brains that the interests of the country may be seen, and an act of simple justice be done. Committeeman McMurdo, an active army veterinarian, wrote from the far West giving a pitiable picture of the position now occupied by the men of the army. Little encouragement was expressed, but they are familiar with defeat, and will continue to fight on until right and justice prevail.

The Committee on Intelligence and Education reported through its Chairman, Leonard Pearson, who gave a comprehensive review of educational matters throughout the country. He announced that Columbian University, at Washington, had abandoned its undergraduate course and henceforth would be the first post-graduate veterinary school in the world. A glance over the educational field gave the Chairman satisfaction, but he believed that New York had raised its standard much higher than natural growth would permit, and in consequence the attendance at the schools was reduced to the minimum. In consequence of the depression in the horse industry through which this country has just passed, a general reorganization of things has occurred. There seems no doubt but we have begun to recover, and much good is expected to flow from the forces that have been operating. The mushroom veterinarians who sprung up during the boom time have passed out of sight, seeking their level in some other walk of life, while the cheap mongrel horse has left the farms forever.

The Committee on Diseases made a report through its

Chairman, Dr. A. T. Peters, giving a detailed account of the statistics which they had been enabled to collect from veterinarians throughout the United States. For the past few years the chairmen of this committee have pointed out that the reports were without value on account of their lack of thoroughness. This year they were as bad as ever. For instance, in the State of New York, it was the conclusion of the committee from information (or lack of it) that neither glanders, osteo-porosis nor strangles had existed in the State during the past year, while it is well known that osteo-porosis at least is always existent in that commonwealth, and there were hundreds of cases there during the past year. The Chairman moved that such portions of the report as dealt with general statistics be eliminated from the records as being worthless and misleading, and only that portion retained which dealt with certain outbreaks of rabies and osteo-porosis. A general discussion resulted as to the best means of securing a valuable report from this committee and it was decided to call the attention of the committee to their instructions of the 1897 meeting, wherein it was thought best to confine their investigations to one or two diseases, and rather give interesting and valuable data concerning them than to attempt the collection of statistics as to the exact area of territory infected. The President explained that the Federal Government could scarcely accomplish that, and such an effort on the part of this association must of necessity be futile. After vote, the report of 1898, except as before mentioned, was stricken from the minutes. Osteo-porosis was reported to be very prevalent in Tennessee by Drs. Fenimore, of Knoxville, and Plaskett, of Nashville. Dr. Cary suggested a method of treatment which had given him some good results—the injection of barium chloride intravenously in drachm doses once a week, and it should be accompanied by good care and food, and should be withheld if fever be present, as it is apt to kill if there is much elevation of temperature. Dr. Cary also spoke of post-mortems he had made on dogs dead of rabies, in which lesions were found in the liver, which was invariably hyperæmic.

After announcing the banquet for Wednesday night the Convention adjourned until 10 A. M., but the members were invited to assemble at 1615 Capital Avenue, to witness some operations.

At the appointed hour on the morning of the 7th a large number of the members and visitors met at the designated place, which comprised a large barn and yard for casting. The first

operation was upon a ridgling by Dr. George A. Scott, of Independence, Iowa. The horse was thrown and secured by W. F. Knowles, of James, Iowa, who used his web-casting harness, their simplicity and efficiency commanding general approval. By the time Dr. Scott had brought the hidden testicle from the wound, a black gelding, nine years old, an extremely bad roarer, for which tracheotomy had been performed, was thrown by Dr. James Vincent, of Iowa, who used a very effective hobble, having the principle of back tension. Dr. L. A. Merillat, of the McKillip College, Chicago, now stepped forward and announced that he would perform on this horse his new operation of "arytenoideraphy," and did so to the delight of all. He is a cool surgeon, and his method of sewing the arytenoid cartilage to the wall of the larynx, where it is afterwards held by the granulations cicatrizing, was very favorably commented upon. At the conclusion of the operation, and while the patient was still under chloroform narcosis, Dr. W. L. Williams, of New York, began the removal of the ovaries from a vicious little old mare, said to be especially irritable at the period of œstrum. The operation was through the vagina, the incision being made on the median line just above the os uteri, through which the hand is passed until the ovaries are found, when a long-handled ecraseur is passed in and the gland removed.

When the Convention was called to order after the clinic, the Committee on Incorporation reported that the charter of the National Veterinary Association was obtained under the laws of the District of Columbia, and was no better than that of any other State. It was therefore not advisable to look further into the matter, and the committee was discharged.

The Treasurer submitted his report for the year, the salient points of which are as follows: Amount received from Secretary, upon assuming office, \$500; from same source, Oct. 15, 1897, \$332.22; total on hand Sept. 5, \$832.22. Disbursements to all sources to Sept. 5, \$566.49, leaving a balance in the bank of \$265.73. Coming down to the close of this meeting, Sept. 8, the report shows that there was received from all sources \$1202.85 (balance, Sept. 5, \$265.73; credit given Secretary for bills paid by him \$154.12, and cash from Secretary, \$783), leaving a balance on hand Sept. 8, of \$1048.73.

The Secretary in submitting his report spoke of the great activity of his office in its efforts to make this meeting of especial value, the correspondence with members and Resident State Secretaries being more extensive than ever before, and

the latter have entered heartily into the work, distributing more literature among the veterinarians of their States than in any past year. He pointed to the applications for membership from all over the country, showing that the association is national in character as well as name. He went into details respecting delinquent members and outlined his efforts and those of Dr. Bell in endeavoring to settle with the American Publishers' Collection Company, from whose hands the accounts were withdrawn. The Secretary concluded that the large balance in the treasury clearly justified the proposed reduction of dues.

The reports of State Secretaries included those of the District of Columbia, California, Connecticut, Manitoba, Alabama, Indiana and Ohio, which were read by title and referred to the Publication Committee for insertion in the annual report.

The election of officers being next in order, Dr. Leonard Pearson nominated for President Dr. A. W. Clement, of Maryland, which was seconded by Dr. A. H. Baker, and nominations were closed, the Secretary casting the ballot of the association.

Dr. Leonard Pearson was nominated for Eastern Vice-President by Dr. Roscoe R. Bell, which was seconded by Dr. Chas. W. Heitzmann, and closed.

Dr. A. H. Baker was nominated for Central Vice-President by Dr. A. T. Peters, and Dr. John R. Mitchell, of Evansville, Ind., by Dr. M. E. Knowles. The ballot resulted in the election of Dr. Baker, who received 22 votes, Dr. Mitchell having 18.

Dr. S. B. Nelson, of Pullman, Washington, was nominated for Western Vice-President by Dr. W. H. Hoskins, and no other name being presented, the Secretary cast the ballot for him.

For Secretary, the name of Dr. Stewart, the present efficient incumbent, was shouted from all quarters, and he was elected in spite of himself, while Dr. Lowe succeeded himself as Treasurer.

The officers for the ensuing year are therefore as follows :
President—A. W. Clement, of Maryland.

Eastern Vice-President—Leonard Pearson, of Pennsylvania.

Central Vice-President—A. H. Baker, of Illinois.

Western Vice-President—S. B. Nelson, of Washington.

Secretary—Sesco Stewart, of Kansas.

Treasurer—Wm. Herbert Lowe, of New Jersey.

When the Convention reassembled in the afternoon Dr. Roscoe R. Bell spoke at some length on the innovation of introducing clinics into the programme of the National Association, re-

marking that he had discovered by interviewing various members that the feature was greatly appreciated, and its continuance thought best. It was regretted, however, that better facilities did not exist for viewing the field of operation. A number of members spoke upon the subject, and on motion a sum not to exceed \$20 was authorized to be used by the local Committee of Arrangements in securing proper facilities for clinical work at the next meeting. Many of the members were not familiar with the details of the operations and it was resolved that each surgeon should present to the association a paper explaining his operation prior to the clinic.

After some routine business the subject of

MEAT INSPECTION

was taken up, the President launching it in a few appropriate words.

Dr. W. H. Hoskins, of Philadelphia, opened the debate by considering it from the aspect of "Educating the Public to the Necessity of Meat Inspection," which he treated in a broad and liberal manner, charging the members to use all means of impressing the subject upon the minds of the public—through their local press, by addresses at farmers' institutes, etc. Dr. Salmon explained that Dr. Hoskins was mistaken in asserting that Federal meat inspection was for the protection of foreign buyers alone, as it was just as careful in its guardianship of interstate traffic in meat; but it had no right to interfere with products for home consumption—that is, when consumed within the State where slaughtered—and the only means the consumer had of securing inspection of such meat was through the municipal inspectors. He contended, therefore, that the securing of municipal meat inspection was the most essential *desideratum* for the members of the association to accomplish.

Dr. Leonard Pearson, of Philadelphia, spoke upon "The Concentration of Slaughter-Houses into Central Abattoirs and Disposing of the Flesh of Tuberculous Animals." The speaker dealt largely with this subject as he had witnessed it upon the Continent of Europe. It was found, for instance, that the concentration of the slaughter-houses into central abattoirs greatly reduced the cost of butchering, insured cleanliness and veterinary inspection, which was impossible where they are scattered all over the cities. In regard to the disposition of the carcasses, he cited the case of Saxony, where the percentage of tuberculous animals was very high—27 per cent. If the carcasses of

such animals were confiscated without compensation, the price of meat would rise to a figure beyond the reach of ordinary individuals, and if compensation was afforded by the government the burden of taxation would be greater than the people could stand. As a matter of fact, however, only 8 per cent. of the tuberculous carcasses are destroyed outright, while 92 per cent. are sold under certain restrictions. Thus, when the disease is generalized and the subject emaciated, with lesions throughout the muscular tissues, the carcass is destroyed; when involving glands, or localized in prescribed organs the regulations point out how the meat may be disposed of at reduced prices and with precautions.

Dr. C. A. Cary, of Alabama, spoke upon "The Reasons for Meat Inspection," going into the subject very thoroughly. He maintained that the butchers should pay the cost of inspection, and that under the centralized system this could be done without perceptible cost to the consumer.

Dr. Chas. W. Heitzmann, of Louisiana, considered "Private Market Inspection," giving the methods and laws in force in the city of New Orleans. He passed on to the details of inspection, giving the processes of decomposition and the methods of detection, contributing some formulæ for accomplishing it.

Dr. James Law, of New York, brought forward an exceedingly voluminous paper on "Dangers to Mankind from the Consumption of the Flesh of Tuberculous Animals," going into a most exhaustive consideration of the subject, arguing for the unity of the nature of the tubercle bacilli in all animals.

Secretary Stewart then presented one of those practical considerations of "Abattoir Inspection," which brings the theoretical deductions down to practical application, and although his consideration for the members prompted him to omit the reading of a large part of it, they would not permit it, but heard him to the end, and applauded him lustily at its conclusion.

Announcement was then made that the members were invited to the warehouse of the Cudahy Packing Company to inspect a collection of pathological specimens illustrative of the subject of meat inspection, which had been gathered together with great pains by the inspectors of the Bureau of Animal Industry for the occasion. This proved to be the most complete and extensive exhibit probably ever held in the world, and reflects the greatest credit upon those having it in charge. Dr. Don P. Ayer, the chief inspector at Omaha, was indefatigable in his exertions to make it worthy of the occasion, while many beau-

tiful specimens were obtained in Kansas City, under the direction of Secretary Stewart. The members lingered about the tables, many going around time and again to view them and to discuss them with their colleagues. We append a list of the specimens:

Cattle.—Actinomycosis: 2 heads, 2 tongues, lung, 2 livers and glands. Tuberculosis: lungs, pleura, liver and lymph glands. Texas fever: spleen, liver, skin showing ticks, urine. Disease of liver: fluke, 2 carcasses of calves.

Swine.—Cholera: 2 carcasses, bowel, kidneys, lungs and spleen. Tuberculosis: lung, pleura, bone, lymph glands, tongue and heart. Abscess: by kidney worms, 1 carcass. Disease of kidneys: liver, hob-nail, echinoccus, inflammation. Pneumonia: lung, liver, and heart. Skin: tinea (ringworm diamond). 1 extra-uterine pregnancy (pig's head), 1 bladder, 1 hog stomach (filled with nails). Measles: liver, lung and heart, tenderloin. Cirrhosis: liver of distillery-fed hog (one of 400, all more or less affected).

Sheep.—Liver, lungs and heart, caseous diseases.

At 9 P.M. about 70 guests sat down to a delightful banquet in the large dining-hall of the Millard Hotel, among the invited guests being ex-Secretary J. Sterling Morton, President Spaulding, of the Omaha Board of Health; Editor Heath, of the *Nebraska Farmer*; Dr. Gilmour of Omaha, and others. The Governor of Nebraska had accepted an invitation to be present, but sent his regrets at the last moment. Dr. W. H. Hoskins acted as toastmaster, and felicitous speeches were made by ex-Secretary Morton, Drs. Salmon, Stalker, Pearson, Clement, Gilmour, Robinson, Carey, Editors Heath and Bell; but it was not until the toastmaster called upon Dr. Ramacciotti that vest buttons began to fly, for his rendition of the New York aldermen's visit to Boston was really convulsing, while Dr. Peters kept the good cheer going by describing the German method of setting hens. It was half past one when the guests arose, having passed a delightful evening.

At 10.30 A.M. on the 8th the members assembled in the convention hall, when the President announced the deaths of Drs. D. P. Frame, of Colorado, and Thos. Giffen, of New York, which were referred to the Resolutions Committee.

Acting upon the recommendations of the Executive Committee, it was unanimously voted to change the name of the association from the "United States Veterinary Medical Association" to "The American Veterinary Medical Association,"

and to make an unimportant change in the reading of the certificate to facilitate engraving.

READING OF PAPERS.

Dr. Roscoe R. Bell, of New York, read a paper entitled "Acute Indigestion in the Horse," and if there were no other papers to follow it we presume the members would be discussing it yet, so interesting did the subject become. Among those who participated in the discussion were Drs. Whitbeck, Williams, Merillat, Nighbert, Shaefer, Baker, Lyford, Cary, Nelson, Mitchell, Reynolds, Stewart, and Vincent. The essayist did not place eserine among the drugs he usually employed, and the opinions expressed by the members were extremely various. The essayist did not recommend it because he feared the violent peristalsis, while Dr. Williams felt that in small doses it could be safely used. At this point Dr. Merillat announced that he had been experimenting with eserine and had reached the conclusion that it does not produce increased peristalsis by stimulation of the intestinal nerves, but that it paralyzed the inhibitory filaments and just let the bowels "run away," after the manner in which a team of horses would act if the lines were severed. He said he never could understand how a medicine could depress one part of the nervous system and at the same time stimulate another, and he was glad his experiments had led him to reasonable conclusions. Many other ideas were brought out by the discussion. Dr. Whitbeck gives his purgative dose for such cases by the rectum, and claims much better results than when administered by the stomach. His bolus consists of about six drachms of aloes and a small quantity of turpentine.

Dr. L. A. Merillat, of Chicago, being called upon for his paper on "Arytenoideraphy," said that he did not understand that he was to furnish a paper on the subject, but promised to have it in the Publication Committee's hands within a week. He, however, gave a talk on the operation, giving a history of the operation of arytenectomy and the factors which led up to the new operation. In the course of his remarks he paid his compliments to the "arytecto-mists" and asserted that while they all claimed to remove the arytenoid cartilage, not one ever did so and have his patient live. This brought to his feet Dr. Williams, who asserted very emphatically that he had removed that structure and his patient recovered. Dr. Law also had removed it with good results, and Dr. Stalker had done likewise. But Dr. Merillat maintained that it was a physiological im-

possibility, and matters were getting quite warm when President Salmon wrapped for order.

In the afternoon of the last day proceedings were opened by the reading of a voluminous paper by Dr. M. H. Reynolds, of Minnesota, on "State Control of Hog Cholera," illustrating his subject by quarantine maps. The paper was discussed by Drs. Cary, Whitbeck, Norton, McBirney, Salmon, Stalker, Nighbert and Lyford.

Dr. H. D. Fenimore, of Tennessee, was not present, so his paper was read by title and will be published in the proceedings.

Dr. C. C. Lyford, of Minnesota, gave a talk on "A Radical Operation for Contracted Hoof," illustrating his subject by numerous drawings and photographs, together with shoes and pads of various construction. After adjournment Dr. Lyford performed his operation upon a horse in the presence of many veterinarians.

Dr. S. S. Whitbeck then read a paper entitled "Practical Points in Country Practice," which was very interesting and instructive.

The literary programme was brought to a close by Dr. John W. Connaway, of Missouri, who favored the association with a paper on "The Practicability of Immunizing Cattle by the Tick Method."

At this point President Salmon resigned his gavel to incoming President Clement, who responded in a few well-chosen words. Then Western Vice-President Nelson made a speech of acceptance.

RESOLUTIONS ADOPTED.

The Committee on Resolutions offered the following, which were unanimously adopted :

OBITUARY.

WHEREAS, Dr. Thomas Giffen, of New York City, an accomplished veterinarian and a member of this association, having been removed from life during the past year after months of suffering ; be it

Resolved, That this meeting expresses its sense of the great loss to the association and to the profession, and that we tender to the bereaved family the expression of our profound sympathy in their great affliction.

Resolved, That this resolution be spread upon the minutes of this association, and a copy forwarded to his family.

WHEREAS, Dr. D. P. Frame, of Colorado, a young and valuable member of this association, having been removed by death ; be it

Resolved, That this association expresses its sorrow at the loss

sustained by us, by the profession, and by the community in which he lived, and extends its profound sympathy to the bereaved family; and be it further

Resolved, That these resolutions be spread upon the minutes of this association and a copy forwarded to the family.

MILK INSPECTION.

WHEREAS, Many of our States and municipalities have not yet adopted any law looking toward the inspection of dairies; be it

Resolved, That a system of thorough inspection of dairies as to their sanitary condition and surroundings be recommended, and that a system of the testing of cattle for tuberculosis be advised.

MEAT INSPECTION.

WHEREAS, In the matter of municipal meat inspection such a system as would be of any benefit to the public is not possible under the existing arrangement of many small slaughter houses; be it

Resolved, That this association recommends the establishment of one or two abattoirs in each city as indispensable to the rational pursuance of such a system under properly qualified veterinarians.

THANKS.

WHEREAS, The Thirty-fifth Annual Convention of the United States Veterinary Medical Association is now closing its labors in the city of Omaha, where it has been so well entertained by the local committee,

Resolved, That the thanks of this association be heartily given to this committee for the very agreeable manner in which they have performed their duties.

WHEREAS, This association is under great obligations to the Cudahy Packing Company for the provision of a room for the exhibition of specimens in the meat inspection service; be it

Resolved, That this association extend its sincere thanks for the courtesy shown.

A. W. CLEMENT,	} Committee.
C. A. CARY,	
S. STEWART,	

COMMITTEES FOR 1898-99.

Executive.—C. A. Cary, Alabama (*Chairman*); J. F. Winchester, Massachusetts; W. H. Hoskins, Pennsylvania; Roscoe R. Bell, New York; M. H. Reynolds, Minnesota; A. T. Peters, Nebraska; D. E. Salmon, District of Columbia. *Ex-officio*—A. W. Clement, Leonard Pearson, A. H. Baker, S. B. Nelson, W. H. Lowe, and S. Stewart.

Army.—D. E. Salmon, District of Columbia (*Chairman*); F. H. Mackie, Maryland; W. H. Hoskins, Philadelphia; J. P. Turner, District of Columbia; M. Stalker, Iowa.

Publication.—W. L. Williams, New York (*Chairman*); Roscoe R. Bell, New York; W. Herbert Lowe, New Jersey; R. P. Lyman, and S. Stewart *ex-officio*.

Finance.—C. C. Lyford, Minnesota (*Chairman*); John R. Mitchell, Indiana; Lemuel Pope, Jr., New Hampshire.

Resolutions.—Leonard Pearson, Pennsylvania (*Chairman*); James Law, New York; T. E. White, Missouri; — Norton, Arizona; L. A. Merillat, Illinois.

Diseases.—Chas. W. Heitzmann, Louisiana (*Chairman*); Tait Butler, Mississippi; H. D. Gill, New York; J. M. Parker, Massachusetts; H. P. Eves, Pennsylvania.

Intelligence and Education.—M. Stalker, Iowa (*Chairman*); James Law, New York; F. H. Osgood, Massachusetts; Leonard Pearson, Pennsylvania; Joseph Hughes, Illinois.

NOTES OF THE U. S. V. M. A. MEETING.

The American Veterinary Medical Association begins its career under very favorable auspices—very different from those of the U. S. V. M. A.

Look at the new members from the Western States and say if it was in vain that we journeyed beyond the Missouri River.

The West turned out *en masse* to show how much they appreciated the opportunity to attend a meeting of the National Association.

They were there from all over the West—Colorado, Montana, Washington, Texas, Nebraska, Iowa, Minnesota, Michigan, Wisconsin, Missouri, Ohio, Illinois, Arizona, Kansas, and from Manitoba.

They were there from the East and the South—New York, New Jersey, Pennsylvania, Maryland, Alabama, Louisiana.

What a record! 97 per cent. of the graduate veterinarians of the State of Nebraska were in attendance upon the meeting.

Drs. Ramacciotti, Young and Peters were an ideal Committee of Arrangements, working in perfect harmony, and making everybody happy.

Don P. Ayer, chief of the inspection service at Omaha, was untiring in his efforts to make the members enjoy their sojourn.

Taken all in all, Omaha must stand as the greatest meeting the association ever held.

Those who missed the ceremonies at the Aksarben Club will never be able to fill that void.

Dr. Hoskins undertook to chaperon the Eastern members; but got lost at Columbus, Ohio, and did not reach Omaha until eight hours after his charges. He got in the wrong dining car,

in company with Madam Hoskins and President Salmon, and after they had partaken of a very prolonged breakfast, discovered that they were speeding at the rate of 40 miles an hour in the direction of Cincinnati. They were enabled to change cars at Xenia, and if their train had not been delayed would have reached Chicago in time to have joined the greenhorns, but it was two hours late, and they found their luggage in charge of the Pullmans. The boys had not finished laughing at their expense when the Convention adjourned. Dr. Hoskins and wife extended their trip to Denver, Col.

Drs. Clement, Lowe and Bell laid off at Chicago for five hours and visited the McKillip Veterinary College, through which they were shown by President McKillip and Professor Wright. The latter entertained the trio at supper, and showed them much courtesy.

Dr. Merrilat and wife, of Chicago, accompanied Dr. Peters to Lincoln, Neb., and spent a few days there.

It was universally iterated that President Salmon's address was the most valuable one in the history of the association. It will be found in the body of the report in this REVIEW.

Those who saw Prof. Pearson and Dr. C. E. Cotton riding a camel in the Streets of Cairo will never again doubt their equestrian ability.

One of the guests from the East was Mr. Charles F. Squibb, of the well-known manufacturing drug house of E. R. Squibb & Sons, of Brooklyn and New York, who journeyed westward chiefly to converse with the members in reference to a revolutionary departure of his house in the manufacture of fluid extracts, wherein acetic acid is made a substitute for alcohol, thereby reducing the cost of these expensive preparations by one-fifth or more. The esteem in which this old firm is held by the medical men of the country readily commanded for Mr. Squibb a respectful audience whenever he wished to explain his innovation, and when he assured his audience that acetic acid as a substitute for alcohol did not detract from the virtues of the extract, but that carefully conducted experiments had revealed the fact that it was just as potent, his assertion was taken as an investigated and established fact. The prices quoted appear in striking contrast to our usual bills. For instance, the alcohol extract of belladonna root is about \$1.25, the acetic, 45 cents; nux vomica, \$1.25; acetic, 23 cents—and so on in the same proportions.

There was not a member whose heart did not beat in sympathy with Dr. Warren L. Rhoads, of Lansdowne, Pa. He has been a member of the association for a number of years, but for one reason or other he has never been able to attend one of its meetings. This year he had anticipated a joyous season of associational work, and looked forward to the meeting with enthusiasm. On the night before his departure his only child, a bright little boy of thirteen months, named Nathan, was restless, and before leaving the next morning the doctor sent for his family physician, in order that his mind might be at ease on his trip. Being assured that the trouble was simply a functional derangement of digestion, he left in full confidence that all was well. When the Eastern members reached Chicago the gate-man at the Union Depot held a dispatch in his hand and asked each one if he was Dr. Rhoads. That telegram announced the death of his boy. But the doctor had arrived at Chicago and departed by the Rock Island route, and when the party by the Burlington route arrived in Omaha Dr. Rhoads was already there and in blissful ignorance of the fatal news from Lansdowne. It was broken to him as gently as possible, and with heart crushed by the enormity of the blow, he took the next train for the East, taking with him the sincere condolence of his fellow-members.

Detroit, Mich., is anxious for the meeting of 1899, having forwarded letters from the Mayor, Governor, and other prominent citizens.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The eighth annual meeting was held at the Hotel Metropole, 42d Street and Broadway, New York City, on Wednesday and Thursday, September 14 and 15.

The meeting was called to order at 11 A. M. by President W. L. Baker, Secretary Morris recording.

The following members were in attendance: Samuel Atchison, Brooklyn; H. B. Ambler, Chatham; E. B. Ackerman, Brooklyn; Roscoe R. Bell, Brooklyn; W. L. Baker, Cortland; Geo. H. Berns, Brooklyn; Charles Cowie, Ogdensburg; R. W. Ellis, New York City; C. F. Ebner, Syracuse; H. D. Gill, New York City; N. P. Hinkley, Buffalo; Wilson Huff, Rome; R. C. Jones, Port Jefferson; G. C. Kesler, Holly; James Law, Ithaca; William Machan, New York City; C. D. Morris, Bing-

hamton; James McKee, Staten Island; L. McLean, Brooklyn; C. J. Mulvey, Modus; Arthur O'Shea, New York City; T. F. O'Dea, Saugerties; J. E. Ryder, New York City; W. H. Williams, Ithaca.

There were also present the following members of the profession: Thomas G. Sherwood, New York City; Ernest Buckley, East Orange, N. J.; Benj. D. Pierce, Springfield, Mass.; C. A. Gleason, Rye, N. Y.; G. S. Hopkins, Ithaca; H. J. Brotheridge, Brooklyn; V. A. Moore, Ithaca; M. Kenney, New York City; B. Günther, Brooklyn; S. R. Ellison, M. D., New York City; S. H. Gage, Ithaca; Thomas H. Doyle, New York City; Olof Schwarzkopf, Flushing; W. C. Bretherton, New York City; Wilfred Lellman, New York City; R. O. Hasbrouck, Passaic, N. J.; A. D. Moeller, Brooklyn; L. R. Sauter, Newark, N. J.

The members were given a cordial welcome to New York by Dr. Robert W. Ellis, on behalf of the County Veterinary Medical Association, in a very neat address, which was responded to by Prof. Law on behalf of the visitors.

The nominations of two members to fill the vacancy on the State Board of Veterinary Medical Examiners occasioned by the resignation of Dr. Huidekoper brought forward the names of Drs. George H. Berns, of Brooklyn, and W. L. Baker, of Cortland, and one of these will be selected by the Governor.

The usual executive business having been completed, the County Secretaries made their reports, that from New York provoking a very lively discussion upon the subject of tuberculosis, it being stimulated by the present action of the New York City Board of Health in testing dairy cattle with tuberculin and destroying all that react without any compensation to the owner. While it was generally admitted that tuberculous cows should not occupy dairy stables, there was decided difference of opinion as to the justice of confiscating the meat of all reacting animals, whether the post-mortem revealed an enlarged bronchial or mesenteric gland or whether affected with the disease in a generalized form. The hope was expressed that the State would make an appropriation to compensate the dairymen. In the course of the discussion it was shown that the latter were endeavoring to protect themselves by employing private testing of their herds, enabling them to slaughter the reactors, many of which pass the meat inspectors as suitable for human consumption.

There were two applications for membership—Drs. Samuel

Atchison, of Brooklyn, N.Y.C.V.S., '87, and H. R. Rider, of Deposit, N.Y.S.V.S., '98—which were favorably recommended by the censors and duly elected.

Dr. James Law, of Ithaca, read a very carefully prepared paper on "Glanders and its Relation to Mortality," which elicited general discussion, many instances being cited where recovery had taken place. Dr. Berns, of Brooklyn, related the instance of a large stable in his clientèle where a horse developed glanders, and the owners directed that the entire stable be malleined, which resulted in the detection of 28 head. The owners were satisfied to have them destroyed, but were persuaded to isolate them and await developments. Consequently an unoccupied stable was procured, and at the expiration of a month the horses were again tested, when five failed to react. At a subsequent malleination they again failed, when they were returned to their owners' stable, and put back into service. Another lot failing to react, went through the same process, and were sent back to their owners. In this manner every animal, save one (which died of colic) was either cured by mallein, recovered spontaneously, or were simply the victims of an unreliable preparation of the serum.

Dr. Roscoe R. Bell, of Brooklyn, then read a paper entitled "Nail Wounds of the Feet of Horses," which dealt largely with the therapeutics of such traumatism, adhering strictly to asepsis as the fundamental principle, but advocating many points of surgical expediency and neatness. The discussion brought forth the impression that probably a majority favored the peroxide of hydrogen in such conditions.

Dr. W. L. Williams, of Ithaca, gave interesting "Notes on Tooth Tumors," which were the result of painstaking observation and studious investigation, creating much interest among the members.

Dr. George H. Berns, of Brooklyn, edified the society by bringing forward the ill-understood but fascinating subject of "Osteo-porosis,"* treating it from the standpoint of an extensive practical experience, and basing deductions upon clinical observations. These had led him to believe it dependent upon stable miasm, and he had been getting good prophylactic results by removing floors, substituting new soil, with an air space under the floor, while he has combatted the disease in patients with more or less success through changing the climate by turning the horse to pasture in the country.

* To be found elsewhere in this issue.

Dr. Williams was the principal discussionist, and dwelt largely upon pathological conditions.

Dr. Robert W. Ellis, of New York City, presented the subject of "The Science versus the Art of Veterinary Surgery," and gave a very thoughtful dissertation upon modern methods of the practical application of surgical procedures, claiming that many practitioners avoided major operations from various causes, among which were diffidence in attempting them, fear of results, lack of time from active practice, and often the impracticability of performing them in cities, where the cost is liable to exceed the value of the patient. He claimed with argumentive reason that the art had not kept pace with the science, and suggested as a remedy the fuller discussion of surgical subjects in veterinary associations. For instance, he thought if a paper were read upon such a subject, and the members were to fully discuss it, and possibly hold a clinic illustrating the best method of performing the operation, that it would give confidence to individuals and result in much good. Many of those who discussed it, took a like view of it, and it is likely that some good results will flow from Dr. Ellis' effort.

Dr. F. C. Grenside was to have read a paper on "The Horse's Mouth," but a dispatch came saying that he was detained at the last moment.

"A New Treatment of Milk Fever" was the subject of Dr. Schwarzkopf's paper, and consisted in a recital of some experimental use of the method of veterinarian Schmidt, of Denmark, which is being detailed in the REVIEW in the form of a translation of Schmidt's original communication describing the principles and practice of his methods. The success which Dr. Schwarzkopf has had with the iodide of potash treatment, with irrigation of the milk ducts, has surprised him, and it is very likely that the profession will soon have full and accurate data, as all seemed so interested in the subject that the author was kept busy with propounded questions.

Prof. Veranus A. Moore, of Ithaca, made "Streptococcus Infection in Domestic Animals" very plain, and everyone felt that they knew more about micro-organisms when he had finished than they ever did before.

Dr. Pierre A. Fish's "Some Experiments with Antiseptics" was read by Prof. Gage, in the author's absence, and was the result of much careful work.

"Notes on the Embryology of Domestic Animals" was by Dr. Simon H. Gage, and was the details of his observations to

determine the relation of the corpus luteum to the number of foetuses in usually uniparous animals where twins or triplets are born, especially as governed by the investing foetal envelopes.

Dr. Grant S. Hopkins read the result of his researches to settle the discrepancy existing between surgeons and anatomists as to whether a mucous bursa exists between the cervical portion of the ligamentum nuchæ and the first and second cervical vertebræ, as the anatomists fail to mention such a structure, while the surgeons have no difficulty in finding it. The result of 25 autopsies showed that the former are correct, and that what the surgeons call a mucous bursa is a pathological condition.

"A Simple Test for Albumen in the Urine" was by Dr. Fish, and will be found elsewhere in this issue.

In deciding the next meeting place the association had to resort to balloting, as there were some six or seven candidates, among them New York, Albany, Ithaca, Syracuse, Binghamton and Buffalo. Ithaca won, with the provision that if the next meeting of the American Veterinary Medical Association occurs within the State of New York, the State Society will meet simultaneously in the same city which it selects.

When adjournment took place at six o'clock on the afternoon of the second day, after the adoption of some very vigorous resolutions regarding the State's methods in dealing with animal diseases, it was the expressed belief of all that this was by long odds the most valuable meeting in the history of the Society.

NOTES OF THE NEW YORK STATE MEETING.

Certainly the best meeting of this Society ever held in the Metropolitan district.

The New York City members attended in goodly numbers; not so many as should have turned out, however.

Only two applications for membership! We had anticipated twenty.

But the papers were numerous and of a high order; the discussions were animated and instructive.

The members expressed themselves as well repaid for their trip.

The trip to Coney Island and the shore dinner were greatly enjoyed by all.

Dr. Gill took a party of the members through the park and up the Riverside Drive in carriages on the morning of the second day.

The resolutions adopted were very vigorous as against the conduct of animal diseases by the State.

Where was William Henry Kelly, of Albany, who is usually on hand at all State meetings?

Dr. McLean, of Brooklyn, took some of the members to task without gloves.

We predict that the late meeting was so well conducted and so full of interest that fewer members will be absent next year.

Ithaca was out in full force—Profs. Law, Williams, Moore, Hopkins, Gage, and Fish by proxy.

Mutterings were heard of another attempt to be made on the State veterinary law this winter, and it was agreed to drop on the various representatives at Albany immediately upon receipt of news of such an undertaking.

Nelson P. Hinkley was on hand with a deep interest in the proceedings, after an absence of two years. After being out of active practice for five years he is about to resume it at the old stand in Ellicott Street, Buffalo.

Dr. Berns entertained Secretary Morris at his beautiful home in Bay Ridge on the first evening and Prof. Law the second.

Surgical clinics having been so successfully inaugurated at Omaha, why not have them at Ithaca next year. The facilities of the State College could be utilized, and they could be made the best ever held in this country. We have plenty of expert operators throughout the State, and we throw out the suggestion to the local committee of arrangements when they are appointed; and the sooner the better.

ASSOCIATION OF VETERINARY FACULTIES AND EXAMINING BOARDS OF NORTH AMERICA.

The annual meeting of this association took place on the afternoon of Sept. 7th, at the Millard Hotel, Omaha, Neb., President Leonard Pearson presiding. In the absence of Secretary Gill, Dr. W. L. Williams was elected to fill the position *pro tem*.

The following members were present on roll-call: *Colleges*—American Veterinary College, Professor Bell; University of Pennsylvania, Professor Pearson; Columbian University, Professor Salmon; Kansas City Veterinary College, Professor Stewart; McKillip Veterinary College, Professor Merillat; New York State Veterinary College, Professor Law; Iowa Agricultural Cottage, Professor Stalker; United States College

of Veterinary Surgeons, Professor Robinson ; Chicago Veterinary College, Professor Baker. (The Ontario Veterinary College, New York College of Veterinary Surgeons, Harvard and McGill Universities were without representatives.) *Examining Boards*—Pennsylvania, Dr. Hoskins ; Maryland, Dr. Clement ; New York, Dr. Kelly.

The amendment to the Constitution to change the name of the association from the " Association of Veterinary Faculties of North America " to the " Association of Veterinary Faculties and Examining Boards of North America," was adopted.

The principal feature of the meeting was the report of the special committee to consider the advisability of forming a National Examining Board, and that a provision should be made for a co-operation with State associations to secure a uniform provision in their legislation authorizing the Examining Boards to establish the standard of examination and to accept the certificate of other boards that have satisfactory requirements. Professor Law read a lengthy report, disapproving of the proposition, based chiefly upon the case of New York State, which has a very much higher preliminary requirement than any other State having an Examining Board, and contending that it would be manifestly unfair to admit practitioners within the State whose preliminary education was far beneath that exacted of its own graduates. For this reason chiefly New York could not enter into any such compact. Other speakers upon this subject were Drs. Hoskins, Clement, Robinson, Baker, Stalker, Pearson, Kelly, Merillat, Salmon and Bell. It was the generally expressed conclusion that such a board was impracticable, and the question was dropped.

Professor Merillat thought that the association had accomplished very little since its organization, and believed more good could be done by discussing methods of teaching, and studying the best means of doing their duty to students. Professor Stalker spoke in the same strain, saying that he had sat in the meetings in the past and heard the propositions to do legislative work for the colleges with a feeling that the efforts were futile and useless, and he was glad that the question was settled, and hoped now that at the meetings the association would take up such work as suggested by Professor Merillat.

After some further discussion, officers were elected as follows : President, Prof. M. Stalker, of Iowa Agricultural College, Ames, Ia. ; Secretary, Prof. L. A. Merrillat, of McKillip Veterinary College, Chicago, Ill.

OBITUARY.

JOHN P. MESSER, D. V. S.—As a result of fever contracted at Santiago de Cuba, in the campaign against the Spanish, this young and promising veterinarian died at his home in New York City, on the first of September. He was for two years prior to the declaration of war a private in the 71st Regiment, and when his country asked for volunteers he promptly offered his services, going to the front with his regiment, and returning to his home just in time to die. He graduated from the A. V. C. in 1897.

THOMAS GIFFEN, M. R. C. V. S.—After a lingering illness this well-known veterinarian passed away the latter part of August at his home in New York City. Coming to America from Belfast, Ireland, a dozen years ago, he located in New York City, and promptly took a commanding position as a practitioner, establishing a very large and lucrative practice. While at his zenith he was attacked by locomotor ataxia, and was soon compelled to give up active work, gradually declining until he became a hopeless invalid. He was a member of the U. S. V. M. A. and New York State Society, which passed resolutions of condolence at their late sessions. Until recently he was also a member of the New York County Association.

NEWS AND ITEMS.

H. F. STEELE, D. V. S., New York City, was married Sept. 17, in New York.

DR. LIAUTARD has been elected Foreign Corresponding Member of the Royal Academy of Medicine of Brussels.

"DR. AND MRS. WESLEY L. LA BAW, 275 Dudley Street, Boston," is the way it appeared on a card received at the REVIEW office.

THE BUREAU OF ANIMAL INDUSTRY has 1000 employés and an appropriation of \$1,000,000. Two hundred veterinarians are upon the roll.

THE famous old broodmare Miss Russell, dam of Maud S. (the first trotter to beat 2:10), died at Woodburn Farm, Lexington, Ky., Sept. 20.

THE MASSACHUSETTS VETERINARY ASSOCIATION resumed its monthly meetings on Wednesday evening, Sept. 28th, at 19 Boylston Place, Boston.

SOLOMON BOCK, D. V. S., President of the Colorado Veterinary Medical Association, has been an invalid from rheumatism for the past year, but is convalescing.

DR. HARRISON P. MONK, graduate of the A. V. C., has accepted the position of house surgeon at the Paterson (N. J.) Veterinary Infirmary, conducted by Dr. Wm. Herbert Lowe.

DR. E. B. ACKERMAN, of Brooklyn, spent a vacation in Connecticut during September in a partially successful attempt to get back fourteen pounds lost during the summer in applying the tuberculin test to Brooklyn dairy cows.

A VAST WORK.—At the banquet of the U. S. V. M. A. at Omaha on September 7, Chief Salmon, of the Bureau of Animal Industry, made the statement that his inspectors had examined the carcasses of 27,000,000 animals during the past year.

LA FOREST EVERETTE TURNER, D.V.S., graduate A. V. C., 1891, who has been holding the position of farrier to Troop L, Seventh Cavalry, U. S. Army, died at Fort Grant, Arizona, Sept. 21, of congestion of the brain. Dr. Lemay says in a note: "He was very popular with us, and we will certainly miss him." He was originally from New York City.

MAURICE O'CONNELL, D. V. S., of Holyoke, Mass., who has been one of the Massachusetts Cattle Commissioners for the past seven years, has been reappointed to that position by Governor Wolcott to serve until 1901. On account of somewhat impaired health, the Doctor and Mrs. O'Connell anticipate taking a trip to the Pacific Coast about October 10th, to remain about two months.

"LOUISIANA AS AN AGRICULTURAL STATE."—That public-spirited veterinarian, W. H. Dalrymple, M. R. C. V. S., of Baton Rouge, La., contributes a stirring article under the above title to the New Orleans *Picayune* of Sept. 1, and there can be but little doubt from his portrayal of the conditions that are in operation that his State is destined to be a great stock-raising country, and therefore one in which the profession of veterinary medicine will play an important rôle.

DIPPING CATTLE TO DESTROY TICKS.—The dipping-vat properly used seems likely to stay the further ravages of Texas fever as well as of scab in sheep. The Department of Agriculture is co-operating with Texas, Kansas and Missouri interests in the matter and after close inspection dipped Southern cattle are being admitted for grazing into Northern pastures. They will be closely watched and if the anticipations of those having

the matter in hand are realized it would seem as if a difficulty of long standing will be satisfactorily disposed of in the near future. Feeders are awaiting the outcome of these experiments with keen interest.—(*Breeders' Gazette.*)

BABY TROTTERS.—L. H. Stage, of Unionville, N. Y., drove two suckling trotters, three and four months old, to a road wagon, the last two furlongs of the half-mile track at Middletown, Orange County, N. Y., on Sept. 15, in 39 seconds. The day preceding they made their start in an effort to beat one minute for a quarter of a mile, the time made being 42½ seconds. It is said that Stage drove these babies home the next day, a distance of twenty miles, with all his paraphernalia in the wagon, along with his own 150 pounds avoirdupois. Their extreme speed is thus backed by surprising endurance. But just here the Society for the Prevention of Cruelty to Animals should step in.

EIMER & AMEND.—On the evening of Sept. 5, 1898, the well-known drug and chemical establishment of Eimer & Amend, corner 18th Street and Third Avenue, New York City, suffered a severe loss by fire. At the time of this disaster they thought it would be some time before they would be able to resume business, but we are pleased to inform their patrons and the public in general, that they are now in a position to fill all orders with nearly the same promptness as formerly. Their prescription department was fortunately only damaged by water and they have continued, without interruption, excepting for one day since the fire, to compound all prescriptions, including those also from their veterinary department, as carefully as had been their custom before the disaster.

AMERICAN LIVE-STOCK EXHIBIT AT THE PARIS EXPOSITION.—It is not yet certain that this Government will attempt any general live-stock exhibit at the Paris Exposition. Dr. Salmon, chief of the Bureau of Animal Industry of the Agricultural Department, who has just returned from the Omaha Exposition, says that he has not fully formulated his plans for the exhibit his bureau will make at Paris, but he is inclined to believe that the restrictions placed by France upon the importation of American cattle will cause the department to limit its live-stock display to horses. He takes the position that if France persists in excluding American cattle under the pretense that it is necessary to prevent the introduction of infectious diseases it would be as well not to ask the privilege of entry of

cattle for exposition purposes. Trade could not be benefited by such an exhibit, as the Frenchmen are prejudiced and selfish and are determined to keep their market away from America. The department's plans for an agricultural exhibit are rapidly taking shape, and it may be that a live-stock display will be made a part of them.—(*Breeders' Gazette.*)

KILLING TUBERCULOUS COWS IN NEW YORK CITY.—The Board of Health of New York City is conducting a systematic inspection of all the dairies within its limits, testing all cattle with tuberculin. All that react are killed and the carcasses confiscated, without compensation of any kind to the owners. If the dairyman refuses to allow his cows to be destroyed his permit to sell milk within the city limits is revoked. They generally accept the former, and submit to the loss. It is working a great hardship upon these people, and there is a question of constitutional right in the matter. It is by no means established that the flesh of animals having slight glandular enlargements or miliary tuberculosis of the viscera are dangerous as food for human beings when well-cooked. On the contrary, the opinion and the rule in most countries permit it. Only a small proportion of the milk supply of New York comes from within the city limits, and as there is no inspection of the out-of-town dairies, it is unfair to the former. The dairymen, however, anticipate the Board of Health inspectors, and have their cows tested privately, slaughtering or selling those that react.

VAPOR AND MEDICATED BATHS FOR HORSES.—At the Omaha meeting of the U. S. V. M. A. there was exhibited an apparatus for administering these baths to horses. It consisted of an ingenious portable stall, entirely enclosed on all sides except the front, through which the horse's head extended, and this opening was closed by a curtain, with an aperture just sufficient to permit the head to pass through, and tightly drawn by a gathering cord around the throat-latch. An alcohol stove within this tightly closed room quickly raises the temperature to any height, usually about 180° F., when the animal will be thrown into a profuse perspiration, which can be continued at the will of the attendant. Out of this condition the patient may be gradually brought by lowering the temperature by degrees, or by the application of hand-rubbing or coolers. Many advantages are to be gained by this system in various diseases, and the members were very flattering in their comments upon it. It is especially intended for veterinary hospitals, and the proprietors will gladly furnish full information by addressing

them at Yankton, South Dakota. See their advertisement in this issue of the REVIEW.

HORSES FOR MANILA—THEIR ARRIVAL AND DETENTION IN HONOLULU—GOOD EFFECTS OF VETERINARY ATTENDANCE.—Dr. W. T. Monsarrat, well known to REVIEW readers through his devotion to his profession in far-off Hawaii, sends us the following interesting items under date of Aug. 29th: "Something that might be of interest to your readers is the arrival of the ship *Tacoma* en route to Manila with horses and mules for the army. Lieut. Cameron, of the 4th Cavalry, is in charge, with Alexander Plummer as veterinarian, and no doubt due to the care and attention of these two gentlemen that they arrived in the good condition that they did. They made the run from San Francisco here in fifteen days, which is a good passage. Four animals were lost, which I consider small, and it is a wonder that more did not go under or over the side of the vessel. The condenser on the vessel did not work as it should, and there was a lack of water for the animals, and with a lack of ventilation, caused by the insufficiency of the electric apparatus, which would not work; but with all these drawbacks, it shows what the skill of a trained veterinary surgeon will do to bring them through as Dr. Plummer did in this case, and I hope that the veterinarian in the Army will be given the rank that he deserves, and not as he is at present. I am glad to see that the REVIEW makes mention of this in its past numbers, and may the end be obtained where the veterinarian will be recognized. I think there is some doubt of the ship going on to Manila—the horses and mules are all ashore here now. I see a good deal of Dr. Hühne, and he seems to enjoy Honolulu. He is in good health and spirits, and is a thorough soldier, gentleman and veterinarian, and a credit to the profession. (Aug. 30.) I learn this morning that the *Tacoma* will not go on to Manila, and the intention is to leave all of the stock to be used by the garrison here. There are 120 mules and 86 horses in the lot."

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AMERICAN VETERINARY REVIEW.

NOVEMBER, 1898.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

THE BLACKMAILING OF VETERINARIANS BY HORSE DEALERS.

In a recent issue of the REVIEW appeared a letter from a young veterinarian inquiring as to the truth of a story brought to him by a transient dealer in horses who had been disposing of a carload in the New York market in which a sweeping charge of dishonesty was made against the profession of that city in the matter of bribe-taking when called in to make examinations for soundness. The dealer in question had asserted that the practice was general; that almost all veterinarians exacted a fee from the seller as well as from the buyer, and that the examiner had to be taken into consideration when the price of the horse was fixed upon. The REVIEW replied to its correspondent by saying most emphatically that he had been misinformed; that the profession of this city was as a rule composed of men of honor far above such disgraceful practices, and that in the matter of character they were the peer of the members of any profession or calling. It freely acknowledged that it was not without its disreputable members, just as every other branch of business or society; but that they were few and not at all representative; men who were failures in the legitimate lines and who hung around the dealers as barnacles do upon the hulks of ships, which in time are washed or scraped off and disappear from view.

It would be just as unfair and unjust to say that all dealers were dishonest and unscrupulous because a few of them resort to disreputable methods in their efforts to make dollars. It is extremely nauseating to an examiner to have the seller attempt to force money upon him whenever he finishes an examination favorable to his interests, and he does so in such a friendly spirit as to tempt the uninitiated ; but the moment that the unwary veterinarian accepts those forbidden dollars, just that moment he loses his self-respect and becomes a dependent tool of that dealer. At the next examination he dare not give an opinion contrary to the seller's interest, for the chances are nine out of ten that he will attempt to sell the animal over the veterinarian's head by attacking the latter's character, and give the buyer to understand either by innuendo or by direct accusation that the sale is interfered with because at the low price asked for the animal he cannot afford to fee his doctor. If it is necessary to make his statement more forceful he produces the original check with the veterinarian's endorsement, or if it had been a cash transaction the item is shown upon the cash book. While this disgusting method of doing business may be accepted as the wages of sin, it nevertheless hurts the reputation of the profession as a whole, and the members should and do frown upon it ; but possibly not to the extent which it deserves. If the associations took it up, and punished by expulsion any of its members who were proven to be guilty of bribe-taking they would be only doing their duty to their honorable and beloved profession.

But this is not the worst of it. The guilty are very liable to reap as they have sown, and those who play with fire run the risk of being burned. If, however, the innocent are submitted to the same kind of treatment, it is surely time to call a halt. Whenever a veterinarian's services are sought by a client for the specific purpose of obtaining his professional opinion upon the soundness of an animal, and that veterinarian makes a careful examination and delivers to his patron his honest judgment upon the qualities of the prospective purchase, he has performed

a solemn obligation, and whether it be favorable or otherwise to the seller, his character should be unassailable. To the everlasting credit of most New York dealers it may be said that such is the case ; they may feel disappointed and angered for the moment, but in the majority of cases they have a higher regard for the ability and character of the examiner than if an unsoundness were winked at because of the few dirty dollars which were to pass from seller to examiner after the buyer had been buncoed by their united conniving. In a few instances it is the practice of the dealer to attack the integrity of every veterinarian who gives a decision adverse to his interests by insinuating that the price at which the horse is being sold precludes the possibility of his giving the examiner a sufficient fee to secure the proper certificate, etc., etc.—thus stabbing an innocent man in the back, and dealing the character of the victim a blow against which he has no means of defense, as the matter is so delicate that it will probably never reach his ears. It is seldom, however, that a dealer would be so hazardous as to put such a statement in the form of a letter, and that the one receiving it would turn it over to the party maligned. But such an instance has recently occurred, and the outcome of it is a suit for \$10,000 damages, the papers in the case having been served, and matters are shaping for a prosecution with vigorous determination. We trust that no compromise will be entertained, and for the benefit of the profession at large we hope that nothing will be left undone to prosecute the offender to the full extent of the law. Murder of character is worse than physical assault, for it strikes in this case not one but all.

THINK OF IT IN THIS LIGHT.

American veterinary journalism will not permit of the luxury of canvassers for patronage ; veterinary editors cannot afford the time to solicit subscribers by correspondence ; yet they are very much needed for their financial, moral and literary support. Every subscriber *should* feel as much interest and responsibility for the success of the journals as the editors

do, for it is for their mutual good that they are published. The editors contribute more than their share by doing the work of compiling, corresponding, and guaranteeing deficiencies. Each subscriber should feel that the least he can do is to see that his neighboring practitioner supports one or more of the journals, besides contributing items of interest and value for the good of all. The REVIEW needs more subscribers. The more it gets the better REVIEW it will be. Have you spoken to your neighbor about it?

PROF. WILLIAMS' translation of Schmidt's important article on "Parturient Paresis" will be concluded in the December REVIEW, followed in the same issue by some interesting case reports of the treatment by Prof. Schwarzkopf, which will be brought down to the time of publication.

ORIGINAL ARTICLES.

PARTURIENT PARESIS.

(THE SO-CALLED CALVING-FEVER, OR PARTURIENT APOPLEXY.)

STUDIES AND INVESTIGATIONS INTO ITS CAUSE AND HANDLING.

BY J. SCHMIDT, VETERINARIN, KOLDING, DENMARK.

*Translated for the American Veterinary Review, by W. L. WILLIAMS,
New York State Veterinary College.*

(Continued from page 455.)

In over eating recovery is often attained if the cow is allowed neither food nor water, if she receives food, if even only hay or straw, this must force a part of the accumulated rich food from the stomach into the small intestine. This occurs in a still higher degree if the cow is permitted to drink water, since this acts not alone through pressure, but also washes a part of the grain with it into the intestinal canal, and at the same time favors fermentation. By distributing so rapidly the gas-

tric contents in the larger part of the intestinal canal there necessarily occurs a more rapid absorption not only of the food elements but also of the injurious products of decomposition.

Since it occurs that the development of the disease is favored by so rapid a distribution and fermentation we may conclude that the etiological moment which plays the chief rôle in this form of the disease is the absorption of too large an amount of a substance acting as a poison which has developed from the great mass of nutritive food during digestion, a substance which must also be formed in a normal condition in the intestinal canal only in non-poisonous quantities.

That this view of the pathology of over eating is right is also verified by the recorded investigations of numerous experimenters of recent date regarding the function of the liver, especially its antitoxic powers upon the poisonous materials which are carried to it by the portal vein from the intestinal canal. I refer especially to the recorded report upon the importance of hepatic diseases to the organism as a whole by Professor Kitt in Vol. 7 of this monthly, page 171. In the light of these facts it is easy to understand how the nervous symptoms occur in the over eating of cows. Since so great an amount of toxic substance can develop in the digestive canal after an overfilling of the stomach with ordinary food substances, that they attain a pathogenic power and since a striking resemblance exists between the symptoms after overgorging and those of calf fever, it must still be considered if calf fever is possibly caused by such a toxic substance existing in the alimentary canal. I have consequently repeatedly sought for such a causative connection, but have not been able to find any convincing reason for this except the secondary development and absorption of toxic substances which could be caused by interference in the digestive functions, especially also because the disease is regularly connected with the time of calving.

Another affection analogous to overeating must apparently be referred to a specific toxic substance*, is that form of hæmaglobinuria (hemoglobinurie

* *Vide*—Dieckerhoff's Auschanung, ref, in Maanedsskrift fur Dryläger Bd. 8, S. 181.

or azoturia) of horses which is generally designated nephritis by us. The most diverse views also exist regarding the etiological relations of this malady. Taking cold is most frequently considered the cause or rather as the exciting cause. On the other hand there is almost no difference of opinion as to the manner by which the disease develops and the course it pursues, and even in the way in which the disease develops and in the varied courses it pursues we have important indications of the etiology.

As it is known the malady occurs as a rule in well nourished horses, on a drive, after having previously stood at rest for a longer or shorter period. If such horses are hitched to a vehicle they are often restless and exert themselves beyond need. After a brief exertion, about quarter of an hour, the malady asserts itself by the horse losing its energy, does not bear on the bit as formerly, sweats profusely, somewhat stiff in the posterior parts and to a degree uncertain in its movements. If the driver is observant at this period and comprehends in a degree the import of these symptoms, he will stop, unhitch the horse, procure a stall for him at the nearest yard if possible, have him rubbed and blanketed, and if possible attended by a veterinarian. In the course of an hour or two the horse materially improves and after 3 to 4 hours as a rule will have wholly recovered. But if the driver is unobserving or perhaps misinterprets the symptoms, he drives farther or even uses the whip in order to reach his destination, causing the progression of the horse to become more and more feeble; he finally falls down and remains recumbent, shows restlessness and uses the anterior limbs without being able to get up. In this case the disease ends fatally or in the most fortunate instances continues for several days to be followed largely by a persistent paralysis of some muscle groups. The various courses pursued by the malady consequently depends upon whether the horse is rested as soon as the disease appears or if he is driven farther.

Since the disease arises during locomotion, and can also be aborted by rest or by continued movements can be developed into a more severe grade, it seems to me beyond doubt that the pathogenic substance is developed by motion. The muscles are, after the preceding long period of rest, brought into increased activity during the vigorous movements of the horse, from which follows an exalted tissue change with breaking down of the albuminoids, perhaps in a manner that some of these products of decomposition acquire the power to exert a solvent action upon the coloring matter of the muscles and the blood, as well perhaps as other injurious properties. These toxic substances cannot be excreted from the blood by the depurative organs, as rapidly as it is absorbed from the muscles. Again in this case one of the chief symptoms is an evident paralysis.

Just as in cows after over eating, and the increased absorption of substances in such quantities as to act as toxins, though not ordinarily poisons, marked nervous symptoms, especially paralysis, are observed, likewise we find in horses gross nervous symptoms especially paralysis of the posterior extremities, due to the suddenly exalted muscular activity with the consequent increased formation of the products of tissue change. These theories could also be extended to other affections which likewise have their origin in auto-intoxication, *e. g.*, the laminitis of horses; but since I wish here merely to show by comparison with calf fever, that a self intoxication with like symptoms to this disease can origi-

uate through an exalted physiological activity of the various organs, I will confine myself to the foregoing examples.

But if the symptoms of overgorging are brought about by an increased absorption of substances formed by the digestive activity, yet they are scarcely due to a pure auto-intoxication, if we would exclude all bacterial influences. For the bacteria existing in the alimentary canal and taking part in the digestive processes, can play an important rôle through their products of decomposition. But in hæmoglobinuria it must be a process absolutely free from bacterial influence which works in or through the muscles, and hence, in relation to the foregoing presumption, a pure auto-intoxication.

I will barely recall here that the paralysis in acute infectious diseases also has a toxic origin.

From the foregoing it follows that under certain conditions aside from other products of decomposition, a larger quantity of a specific toxic substance can develop than the organism is competent to at once neutralize and excrete. At the same time we saw that the substance which was considered the cause of calf fever, could probably come neither from the uterus nor digestive tract.

We must then seek elsewhere for the cause of parturient paresis. There remains only the udder as the most probable source of origin.

All conditions which favor profuse milk secretion during or after birth, likewise add evidently to the disposition to milk fever. The etiology of the disease is therefore to be sought in an abnormality which in one way or another is connected with the secretion of milk during the colostrum period. The parturient apoplexy occurs, therefore, as is known, after a sud-treatment, that by the one or the other inciting cause a partial detachment of epithelial cells ensues. Likewise it is noted at times, that parturient apoplexy first shows itself 10 to 16 days after birth, indeed in very rare cases, even six months after parturition. Although such cases usually tend to assume a very pernicious type, I have however seen two cases which pursued an equally typical course under antitoxic therapeutics as in cases of the ordinary character. Although the symptoms in the cases named are throughout similar to those observed in parturient paralysis arising under ordinary conditions, the tendency might be to believe, that the cause is not identical in these cases

with the typical parturient apoplexy. But when I have observed the typical course after the treatment (compare No. 13), I entertain no further doubts from this standpoint.

The products of decomposition are practically always poisonous wherever they are formed and whatever their chemical constitution may be. The toxic substances endowed with a specific action which can induce quite characteristic symptoms of disease are in all probability formed also in minimum quantities under normal conditions, along with other products of tissue change. But only when it is formed and taken up in larger quantities than common, and chiefly if the neutralization and excretion fails, it reveals its presence through morbid symptoms, instead of inducing relatively increased absorption. This can occur in milk fever because of the one or the other exciting cause.

The physiological limit for the neutralization of excreted toxic material or the depurative power of the liver, the kidneys and other organs can be easily overstepped by self-intoxication, as we have seen in case of the activity of the digestive tract and muscular system. Calf fever of a mild type occurs indeed, more frequently than is believed. That is, we occasionally see in the cow, without other evident reason, a sort of inert digestion after parturition, in connection with retained afterbirth, and a certain depression of the nervous system, languid expression, weariness, feeble movements, yet without any marked paralytic symptoms yet showing uniformly a subnormal temperature. If one attempts in these cases to remove the afterbirth, he will be surprised to observe that the uterus has scarcely contracted at all since parturition and that the afterbirth is readily detached. At times similar cases are met with, where the placenta has already been expelled in which however, the uterus has not contracted and where likewise the temperature is relatively low. I believe that such cases represent a milder type of milk fever.

Those cases, in which no evident symptoms of paralysis appear, probably have their foundation, not alone in that only a minimum of the toxins become developed, but as readily also in that the toxin has a different composition. In the different

cases of this affection, even if it assumes the worst type, the toxin exhibits a stronger affinity, now upon this, and then upon another organ; also the temperature is at one time distinctly higher, at another equally lower than normal. The chemical combination of the toxin is therefore probably variable, so that now and then changes can occur in it, by which it can also have a variable poisonous effect upon the different organs, according to the preponderance of the one or the other form of toxin.

When the cow, by all possible means, is brought to a high state of milk production, and thereby passes beyond the limit of physiological equilibrium either through the sudden diversion of the blood stream after calving or as a result of the existing condition, the equipoise can probably be destroyed by a trivial condition, through which the formation and absorption of toxins is increased or their neutralization and discharge checked. "Taking cold" has long been recognized by practical experience as one of the most important exciting causes; to which we must add an over-abundant and excessively nutritive diet, and after birth, the drinking of excessive quantities of water or changes in food with the resultant digestive disturbances. Also the neutralizing functions of the liver become hereby lessened, while at the same time greater demands are placed upon it.

According to the investigations of B. Boygild and V. Stein* it has been shown, that when the cows are turned into the pastures in autumn and are exposed to the cold as well as being put upon the succulent autumnal grasses, the butter possesses a very small amount of volatile acids, which is immediately improved to a degree, if the cows are stabled without a change of food (soiled) or still more, if allowed winter food at the same time. Since temperature as well as variations in diet can have an influence upon the constitution of the butter fat, the lacteal cells must be especially influenced by these factors. Heat and cold, light and darkness and their consequences, which influence the composition of the blood at the different seasons, I will only

* Tidsskrift for Landokonomie, referirt von H. Faber in: Ugeskrift for Landmand Nr. 16, 1896.

mention here, because it follows that the lacteal cells can be influenced by thermal variations.

I must further add to the exciting causes mentioned the agency of too early or too intense milking, by which the functions of the udder are greatly excited.

I have likewise had the good fortune to have my attention directed to the question whether the cows yielding milk richer or poorer in fat have a special predisposition to milk fever. In case of patients Nos. 10, 14, 27 and 38, notes will be found showing the quantity of butter fat in the milk. Also P. A. Mörkerberg has been so kind as to furnish me with the following data, on the proportion of fat contained in the milk of a cow in a dairy establishment in the island of Fuhnen. The milk from this cow yielded in 1893 3.37 per cent. and in 1896 4.04 per cent. of butter fat. On the 17th of December, 1895, the milk contained 3.40 per cent. fat, and in the first two months after the advent of the disease it had become very fat; thus it contained, for example, on the 21st of March, 4.87 per cent. and on 24th April 5.63 per cent.; but after that it gradually decreased. What rule, if any at all, the richness in butter fat plays in the predisposition to the disease must be determined by further observations.

When the toxin formed in the udder is taken up into the blood it circulates throughout the body in it, and acts, as in over-eating and like the poisonous substance developed by hæmoglobinuria especially upon the central organs of the nervous system and the muscular system and through these, upon the functional powers of various organs. The toxin, as it is formed, is gradually neutralized and expelled probably in several of the organs of the body. It can also probably become partly neutralized, like the poisonous substance of overgorging, by entering the general blood current and passing gradually through the arteries of the digestive organs and their capillary net-work are forced to the portal vein and liver. A part of the toxin will, perhaps, be expelled also by the milk glands themselves, without gaining access to the organism, as it is indeed well known that cows, which are giving milk, are on account of the milk secretion more resistant against various poisons, than other animals. But what is excreted in this way cannot be greater in quantity than that which the digestive organs of the calf are in a position to neutralize. It is observed now and then that new born calves are fed on such milk, without suffering therefrom.

With the advent of the disease in the organism begins a decreased secretion of milk and detachment of colostrum corpuscles. The entire process of tissue change becomes less intense. Thereby the development and absorption of toxins must likewise decrease and as soon as neutralization and excretion can keep pace with the absorption, recovery ensues. It is well known, that the quicker after birth under ordinary conditions, the malady appears, the more dangerous it is. This can be explained by the fact that the time of the course of the disease coincides with the most abundant colostrum period.

The highest point of the quantitative and qualitative colostrum formation can occur somewhat later, but generally does not reach so great an intensity in such cases, as in the course of the first 24 hours. Partly on this account, and partly because patients during the course of the disease gradually approach nearer and nearer the close of the colostrum period, cows which have been attacked with the disease 2 or 3 days after calving recover more frequently than those which become affected during the first 24 hours. Upon the same ground it can be explained that cows, which live beyond the third day of the disease, ordinarily recover, unless other secondary complications supervene. But even when pathogenic quantities of toxins no longer find their way to the blood, several hours must yet elapse before the toxins already taken into the blood become neutralized and thrown out and recovery can occur.

The rapid passage of large quantities of toxins into the blood current can, on the other hand, quickly cause the death of the animal; the neutralization and excretion can not keep pace with the formation, and the poisonous substance becomes accumulated in such quantities in the blood, that it has the power to produce complete paralysis of the heart. If, however, the development of the toxin proceeds in not too great a volume but more continuously during a longer colostrum period, then the disease pursues a more protracted but less intense course and ends as a rule in recovery. In some cases, however, the poisonous substances seem to have produced such gross material

changes in the nervous system, that, as is seen in hæmoglobin-uria, there remains a paralysis extending to several muscular groups, after the other symptoms have disappeared.

The treatment of calf fever, as practiced up to the present time, has produced nothing which exerts the least influence upon the course of the affection. If one attended a milk fever patient before the disease had reached an advanced stage, he must still give the opinion, regardless of the early treatment, that the patient would become worse before improvement could be expected. It has consequently been necessary to constantly seek for new, and if possible, better therapeutic agents and an extraordinarily large number of drugs have been tried against this affection. For a time this or that remedy has given apparently favorable results, but later has failed to prove its value. We may therefore conclude that it was the character of the malady, was its benign or malignant course, which has differed at different times, and has led to the recovery of a greater or less number of affected animals, but clearly expressed, one must say, that the amount of toxins which developed in the udder, as well as their chemical constitution was different. These periodical variations can be attributed in a measure, to the greater or less nutritive value of the food supplied and by its power to stimulate the milk secretion; and the quality is very probably dependent upon various atmospheric influences on the thermal variations, of low barometric pressure * and on all that can contribute to influence unfavorably the constitution of the blood and through it the lacteal cells.

During the course of calf fever there comes, as is known in almost all cases, a shorter or longer period where life and death hangs in the balance; the scale sinking or rising now on this, now on that side, so that even the experienced veterinarian can only with difficulty give a merely tentative prognosis. It is also generally recognized that the usually imperceptible action of the many medicinal agents, which have been used for milk fever, have made most veterinarians very skeptical, so that

* L. Andersen, Tidsskrift for Veter. Bd., 23, S, 177.

many of them after a trial of the drastic remedies, have changed to neutral medicines with which they have obtained quite as favorable results as formerly. This indicates that in many cases recovery occurs wholly through natural aid and that consequently no energetic interference is required for the aid of these. It is clear then that if we can contribute to the force against the cause of the disease, that is the development of toxins, the curative results must be better than before.

What is demanded of a specific medicinal agent, is, that the course of the disease shall be shortened, and the majority of the affected animals recover, when it is possible to have the handling of the disease in its early stages. But it may occur that before treatment has begun, so great a volume of toxins has been absorbed and such an extreme destruction of function has taken place in various organs, that a complete paralysis of the heart must follow. It is not known either if the disease is preceded by certain complications with various diseased conditions like hepatic diseases, cardiac defects, etc., or there may occur during the course of the malady other accidents such as articular strains, rupture of muscles, wounds and especially foreign-body pneumonia, in consequence of the entrance of food particles or medicine into the respiratory passages.

The treatment must be directed according to the etiological conditions here proposed, primarily against the quantitative and qualitative greatly exalted activity of the udder. The results must then indicate whether the udder is really the organ whence the disease has its source. It is well known that the milk secretion can be checked by the internal administration of potassium iodide. I have consequently, after first satisfying myself as to the cause of the disease, attempted to apply this agent against milk fever. I have used potassium iodide subcutaneously in several cases, but only in a dose of 2 grammes (30 grains). I have not been able, however, to show a specific curative action.

The most direct manner, if it could be carried out, to oppose the morbid activity of the mammæ would be to inject the medi-

cine into the udder. I knew, however, through the contributions of Gillebean and Hess * that most drugs irritate the udder and that caution must be used in introducing medicines into that organ. Since I have proposed that the disease has its origin in an abnormal secretion of colostrum, it naturally followed to test the injection of a potassium iodide solution since thereby the secretion and the correlated forced casting off of the colostrum corpuscles thereby decreases and the iodine combinations would exercise a neutralizing influence upon the toxin. Iodine salts promotes, as is known, the resorption of pathological accumulation by splitting up within the organism into free iodine which combines with the pathological products.† How the combination acts is not yet fully known. But I think myself warranted in supposing that in this way compounds can be formed which can no longer possess a ptomaine-like character, and that such iodine compounds in the lacteal cells would form first and most easily by the application of iodine in the udder itself. But it can be doubted if we are in a position to introduce such a solution into every part of the udder; likewise it must at first meet with a milk stream, with which it must mix before it can penetrate deeper. It would not suffice to inject the medicine into the udder, as is usual, with a small syringe, since a greater volume must be introduced in order to penetrate to every part of the gland. I devised, therefore, an infusion apparatus for this purpose. It consists of a milk catheter of comparatively large size, a rubber tube about $1\frac{1}{2}$ meters (5 feet) long, and a glass funnel.

(To be continued.)

THE "Proceedings of the 35th Annual Session of the United States Veterinary Medical Association," will, we are informed by Chairman Williams, be ready for mailing to the members by November 1. The copies will be bound in cloth this year instead of paper, as formerly, and from advance sheets it appears to be mechanically in advance of previous issues.

* Ref. von Friis in : Maanedsskrift for Drylager Bd. 7, S. 152.

† Fröhner. Arzneimittellehre, 1890, S. 262.

SLAUGHTER-HOUSE INSPECTION.

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A Paper read before the 35th annual meeting of the U. S. V. M. A. at Omaha, Neb.,
Sept. 6-8th, 1898.

The establishment of slaughter-house inspection by the government at the large slaughtering establishments, doing a foreign and interstate business, has served to attract attention to the necessity for careful inspection at all slaughter houses supplying cities and towns with animal food products. In order that slaughter-house inspection may be all that public health requires that it should be, several conditions must be harmoniously conjoined. There must be legal authority to conduct inspection and enable the inspector to enforce necessary regulations. There must be a substantial moral support on part of the public, both general and official. The inspector must be thoroughly competent.

If inspection be established under the authority of a local or State Board of Health, the power for enforcement of its rules is usually ample and easily applied. When the authority for inspection is through municipal ordinance, political influence is a forceful factor, often rendering uncertain the official position of the inspector, and not infrequently determining a vacillating and biased service, with laxness where financial or political force is applied.

If inspection be intelligently and honestly conducted, and the public kept informed as to the work done through official reports, public sentiment will lend strong moral support to this kind of sanitary service. No one thing will create stronger public approval and more general satisfaction than the assurance that the food upon the table is not tainted with disease.

The qualifications of the inspector for the duties of his office are important factors in the establishment and maintenance of a service which fully protects the public and yet does justice to the owners of animals slaughtered. He should possess a thorough knowledge of the anatomy of domestic animals and have a good working knowledge of comparative pathology. He

should be familiar with the ante-mortem symptoms and post-mortem lesions of the more common diseases and possess the mental acumen to trace out and determine the rarer ones, and withal judge fairly as to the influence any disease or morbid condition may have on the wholesomeness, as human food, of the flesh of an affected animal. He must be honest, courteous and discreet. Inspection may be carried on without serious conflict with the slaughterers if the inspector condemns with discretion, and has the tact to explain in simple language why he condemns when objection is raised by the butcher or owner. In this way they may be led to have confidence in the inspector and will manfully bear their losses when unfit carcasses or organs are condemned and destroyed as food.

We may class as positively dangerous, both for food and to handle, the carcasses of animals affected with anthrax, rabies, septic conditions and the malignant œdema and foot-and-mouth disease of Europe ; as dangerous and suspiciously unwholesome, those affected with tuberculosis, actinomycosis, Texas fever, erysipelas, sheep pox, hog cholera and swine plague, or any disease producing elevation of temperature ; also beasts which have died before slaughter or must be killed to save them, and flesh saturated with œdematous fluid or blood.

There is a class of meats which is decidedly disgusting and loathsome, though not positively harmful as food, such as the flesh of animals which were drowned, smothered, or died of apoplexy ; females in the parturient state, or its near approach ; unborn or recently born young ; animals fed on loathsome offal ; flesh which emits an unpleasant odor ; and flesh containing parasites, such as trichinæ and cysticerci, the last two being harmful if consumed raw.

Flesh may be considered wholesome in cases of recent injury, localized diseases of single organs of a chronic, non-malignant character, or localized parasitic invasion, the parts involved having been removed.

The interest of the owner of meats under inspection is to be considered in connection with the health and prejudice of the

consuming public. It will be observed that popular and personal prejudices play quite an important rôle in this connection. Persons not accustomed to seeing animals slaughtered and the parts or organs prepared for food, are often disgusted with many conditions and products, which are perfectly wholesome ; and others, who do this work or constantly see it done, become accustomed to and consider wholesome many conditions of flesh which may be decidedly harmful or loathsome to the general public. The public should be properly protected from the ignorance or rapacity of the butcher, and the owner or slaughterer of animals be protected from the ignorant prejudices of the public.

Examinations made before slaughter are highly important. Considerable enlargements of any of the tissues about the head, neck and limbs are easily discernible ; gangrenous wounds and skin diseases will be noticed, and the sick or bruised animal which gets out to one side by itself, or lies down while the others stand or walk about, will not be overlooked ; also the class known as "downers," or cripples, which cannot or will not walk to the slaughter house, may be seen. Special attention should be given to such animals during the post-mortem inspection, for the wily butcher knows how to skillfully cut away evidences of disease while removing the skin, limbs and head.

If the slaughtering establishment be a small one, and the examiner has abundant time to leisurely watch the entire process of slaughter, no abnormal or diseased condition need escape his notice, but in large abattoirs, where 100, 200 or even 500 animals are slaughtered per hour, the process of dressing is done in parts, at several points along the journey of the carcass from the killing bed to the refrigerator. The head, feet and visceral organs are quickly removed to another part of the establishment, so the evidence of disease must be seen quickly, if at all, and the carcass of which they were a part be identified. Still greater acumen must be exercised in small abattoirs where the carcasses are dressed and viscera set aside to be examined at the convenience of the inspector.

During the transportation of cattle by railroads to the mar-

kets many are injured. These injuries vary from slight bruises to extensive contusions of the soft parts and fractures of the ribs, vertebræ or bones of the extremities. Ten to thirty hours after infliction these injuries are manifest in the live animal by swelling and puffiness over the seats of contusion, and if extensive the animal moves about very stiffly, as though foundered. If the ribs are broken the injured side is protected as much as possible by muscular rigidity on that side. If a femur, ilium or vertebra is fractured, the animal will be unable to rise, and must be hauled from the car or yards to the slaughter house in a cart. Sometimes cattle get down in an over-loaded car and cannot get up, owing to the crowded condition of the car. They are trampled on by the others and after much struggling become discouraged and will not get up; or during a rainy or an icy period cattle slip, violently separating the hind legs at right angles to the median line of the body, rupturing the muscles in the pubic region, perhaps fracturing or dislocating the femur or other bones. These animals are known as "downers." When slaughtered the cases of severe injury of more than twenty-four hours' standing do not bleed so freely nor so perfectly as a sound animal. When the skin is removed contusions recently inflicted are easily discerned, the subcutaneous connective tissue and fat being infiltrated with blood escaped from ruptured capillary vessels. If the contusions be extensive as when a bullock gets down in a car and is repeatedly trampled upon, the fat and connective tissue of the back and sides of the body are torn and pulpified to such a degree that the skin is removed from the injured parts by very slight traction, and the surface of the body is discolored over large areas. The contusions may extend deep into the muscular structures, even through the thoracic or abdominal walls, being accompanied by hæmorrhage into the parts, pulpification of the muscle structures and sometimes fracture of ribs. If the injured animal be not slaughtered before febrile conditions are established, the injured tissues will become infiltrated with an exudate, varying in color and consistence from a gelatinous amber-colored serum to a thin, dirty fluid,

with sometimes a disagreeable odor. The expert butcher deftly removes the hæmorrhage-stained, infiltrated and torn fat and connective tissue overlying the muscular structures, also the superficial muscles, if coagulated blood and serum be found in and beneath them; then with a brush and plenty of very hot water the smaller hæmorrhagic discolorations are softened and washed away, the parts presenting a nearly normal color when dried and placed in a refrigerator until thoroughly cooled. When the injuries are recent, as indicated by the absence of the products of inflammation, the bruised and torn parts can be cut away, leaving the remainder of the carcass wholesome food and not offensive in appearance. In the cases where the serous exudate is extensive or malodorous, or where rigor mortis is established before the skin can be removed, changes have taken place in the fluid and solid tissues which render them suspiciously—if not certainly—dangerous for food, and they should be condemned.

The class mentioned as “downers,” or cripples, naturally require especial attention, yet when slaughtered and dressed it is often difficult to discern any sufficient reason why some would not or could not walk to the shambles, so slight are the tangible lesions. Many of them present lesions of the bones and contiguous soft parts, and the same principles apply in determining the wholesomeness of the flesh as though these animals walked to the slaughter house.

Large suppurating wounds from punctures, gunshots or branding irons, or gangrenous wounds are sufficient cause for rejecting the bearers for food purposes. Such animals are usually in a declining physical condition, which fact makes it highly suspicious, if not certain, that the structures of the body are deleteriously influenced by poisonous elements carried from such wounds. If such wounds be small and post-mortem sections of the surrounding structures and contiguous glands show them to be normal in color and consistence, the removal of a liberal portion of the structure surrounding such wound should render the carcass unobjectionable.

Actinomycosis is the most prevalent disease of cattle in this section of the country, and in at least 80 per cent. of the cases in cattle offered for sale at the market the lesions of the malady are confined to the structures of the head and neck. Indeed, in most cases it is a local affection, in no way affecting the general system, excepting as it interferes with prehension, mastication and deglutition of food. The majority of cases involve the inferior or superior maxillary bones. In all these cases coming under my notice there were found to be from one to six or more fistulous tracts, discharging into the cavity of the mouth. These fistulæ are to be found before the disease has reached sufficient development to be observable by visual examination externally, and long before the overlying skin has been involved in any degree. A careful examination of the internal organs of many cattle having actinomycosis of the maxilla in the early stage but with fistulæ in the mouth has failed to reveal the involvement of any visceral organ. As stated before, the lesions of the disease are to be found usually in the tissues about the head and neck. When the soft structure only are involved it usually begins in one or more of a chain of lymphatic nodes, extending from the mouth to the thorax, most frequently in the sub-maxillary region. The disease processes set up in these nodes, destroy them and in their stead is developed a dense, thick-walled sac of variable size, containing a whitish, odorless fluid or semi-fluid mass, which, it is claimed, "consists of detritus resembling pus but lacking the specific micrococci which are always present in pus." The skin over these tumors may be involved and a fistula established, the external end of which is surrounded by a granular growth, which necroses on the surface, giving off a very offensive odor and has a disgusting appearance. Extension to other parts is more frequent when the disease is glandular in character.

In about 20 per cent. of cases the fungus invades the soft parts about the head and neck, many of these present actinomycotic growths in the lungs and occasionally the liver and intestinal structures are invaded. The disease appears to extend

along the lymphatic channels rather than to find dissemination through the general circulation. Out of several thousand cases only two were reported as generalized, and careful inquiry showed no involvement of the muscular structures but was confined to the head, neck, glandular structures of the cavities, and I question if these cases were not pyæmia coincident with actinomycosis. Actinomycosis of the tongue is very rare.

When the bony tissues, the parts invaded by the actinomyces, the characteristic proliferation of the osseous and periosteal tissues attain dimensions which give it the popular name of "big jaw." The fungus destroys the bone and its covering, supplanting them with a new growth of fibrous tissues, enclosing masses of granular tissue, in which is imbedded small yellowish points of gritty, purulent fluid, the hard grains being clumps of the specific micro-organism of actinomycosis. When the overlying skin is involved, the surface presents one or more granuloma, which surrounds fistulous openings through which a purulent fluid escapes. If these growths have not interfered with the general health of the animal, sentiment is the most tangible reason for condemning the carcass.

Tuberculosis is found in a small per cent. of the cattle slaughtered in the valley of the Missouri, being found principally in cows over five years old, but is occasionally found in calves and young cattle. No structure of the body is entirely exempt from disease processes set up by the tubercle bacillus, but there is a much greater tendency for the germs to establish themselves in the lungs, thoracic glands, and mesenteric glands, and then spread to other contiguous organs or tissues, or becoming generally disseminated throughout the body. The bacilli, by their active presence in a tissue, induce a new growth about them which, if it be near or on the surface, projects or stands out like granules. These growths are called "tubercles." They are found scattered through the substance of glands and other structures, or on their surfaces. This form of development in the serous membranes constitutes what is known as "pearl" disease. Tubercles are often agglomerated into masses from the

size of a pea to an egg, and even attain the weight of ten pounds or more. Tubercles or masses when found on free surfaces have the appearance of granulation tissue, but when cut across the centres are found to consist of semi-solid, whitish, caseous material, and in chronic cases may contain small particles of lime salts, giving this cheese-like substance a gritty feeling to the touch. Sometimes the necrosed tissue in the tuberculous glands of the neck and thorax and in large tubercular masses in the substance of the lungs and liver, may be liquid or partly liquid. It is a very difficult matter to detect the tuberculous animal when confined with others in slaughter house yards, as there are no pathogenomic signs which plainly and certainly distinguish it from the non-tuberculous, unless it be in the cow bearing the tuberculous udder and contiguous lymphatic glands. By tactile examination any considerable development of tubercle in the lymphatic glands above and behind the udder, or in the udder itself may be recognized by the nodular character of the induration present. The non-tubercular induration of this organ giving a more uniformly smooth surface to the touch.

Upon post-mortem examination the observer will readily discover when present the granular appearing tubercular growths on the serous surface covering any viscus, or lining the thoracic or peritoneal cavity. I know of no normal or other pathological condition presenting a similar appearance. These growths are nearly always present either in the thoracic or peritoneal cavity, in cases of generalized tuberculosis. The serous membranes lining the thorax and abdomen are easily torn out and with them these telltale evidences of generalized infection. Enlarged lymphatic glands and abnormalities in appearance of the visceral organs will attract attention, by section of which the character of the disorder may be determined. It is differentiated from actinomycosis by the small yellowish points and the actinomyces grains of the latter disease, and from parasitic and other abscesses by the character of contents, and the presence or absence of like lesions elsewhere, and if necessary by aid of the microscope. In ordinary post-mortem

examinations in slaughtering establishments, the inspector should have time to minutely examine the entire carcass in cases in which the gross lesions are confined to a single organ or gland; even then he cannot always discern whether generalized tuberculosis is in process of development from the localized form. Color, odor, texture, fatness or leanness give no hint of such extension of this disease. I have seen very fat carcasses which were actually studded with tubercles all over the external and internal surfaces, as well as their being profusely interspersed throughout the muscular tissues. Of course many cases are emaciated. Localized tuberculosis whether it be in lymphatic or mammary gland, in lung or liver, does not apparently modify the physical appearance of the carcass.

There seems to be a great diversity of opinion as to the wholesomeness or unwholesomeness of the flesh of tuberculous cattle, even in Europe, where several international congresses have debated the subject at great length. The consensus of opinion seems to be that in all cases of generalized tuberculosis the carcass should be condemned, and when localized the flesh may be safely used for food.

The disease known as "Texas fever" or "Southern fever" may be recognized in the living animal which has been driven to the abattoirs for slaughter, if it is allowed to become quiet, for as soon as the excitement of the drive is past the sick animal assumes a characteristic position. The back is arched, the limbs are spread apart to enable it to stand steadily, the head is dropped low, the ears fall downward and forward, or the animal may lie down, when the head is carried around to the flank, as in parturient apoplexy. If a thermometer be employed, it is usually found that the rectal temperature is 103 degrees to 106 degrees Fahr. Should the animal void urine, the dark wine color will be very noticeable, and when the sick animal is made to walk, after a period of rest, a staggering gait will attract attention. If it be docile an examination of the visible mucus membranes may be made, but in range cattle the prudent inspector will dispense with the information to be so acquired

for animals sick with Texas fever are more excitable and vicious than healthy cattle. The presence of ticks on the escutcheon, thighs, flanks and elsewhere confirm the diagnosis.

When an animal sick with Texas fever is slaughtered, the examiner will find the spleen greatly enlarged, its capsule easily torn, and the substance of the gland quite black and very soft, sometimes partly liquid, so that considerable of the splenic mass will gravitate to either end of the capsule if suspended by the other end. The liver is much enlarged, and changed from a brownish to a mahogany color, also somewhat mottled on cut surfaces due to being irregularly stained with coloring matter from the blood. The gall bladder is distended with a very dark, tarry, viscid bile, in which is suspended a quantity of yellow flakes, which will deposit upon standing. The urine contained in the bladder has a dark red to port wine color, and the kidneys will be found congested. Other visceral organs present no characteristic lesions. In some carcasses the tissues have a yellowish tinge and the fat a bright lemon yellow shade. In other carcasses the color of the flesh is normal but the cancellous structure of the bones is stained dark like the urine.

The foregoing presents the principal ante-mortem symptoms and post-mortem lesions of an acute disease fully developed. In this type of case an inspector would not be in doubt as to whether or not an animal is diseased, nor as to what disease it is, neither would he hesitate concerning its condemnation. In the same bunch of cattle in which this typical case is found, there will probably be others in which this malady is just beginning to develop or is partly developed. The structural changes in the spleen and liver are not so marked, perhaps scarcely discernible. The disintegration of blood corpuscles may not be sufficient to stain the urine highly. Or the case may be of a very mild type. It will tax the judgment of an inspector to rightly determine whether or not the animal is infected; whether or not the disease is sufficiently developed to render the flesh unwholesome, this disease not being communicable to man.

Advanced pregnancy or the parturient state though normal

conditions, should reject the cow for slaughter. Sentiment renders the flesh of such unappetizing, as well as the flesh of the unborn or recently born calf. Local regulations usually require the calf to be four to six weeks old, or to weigh at least seventy-five pounds when dressed.

Extreme emaciation from any cause so modifies the tissues that the carcass does not become firm and dry in the refrigerator, like normal flesh, and accordingly is very deficient in nutritive qualities and should be rejected.

Leucocythemia or lukemia is occasionally found on the slaughter beds. Enlargement of the lymphatic glands and spleen are the abnormalities which attract the attention of the inspector. In the several cases coming under my notice the animals were in thin flesh, presenting the appearance of general unthriftness. The spleen was many times the normal size, and the lymphatic glands in all parts of the body were from two to ten times the usual diameters, cross section of which presented a normal appearance. In well marked cases condemnation is indicated.

Non-specific inflammation of every viscus is occasionally found and the disposition of the carcass must be determined by the stage of development and extent and character of, perverted functional activity. It is conceded that high bodily temperature, long continued, impairs the quality and character of flesh, rendering it unappetizing, noisome and suspiciously unwholesome.

Acute inflammation, as well as chronic structural changes of the kidneys are quite apt to escape notice, owing to these organs being imbedded in considerable fat. Any considerable interference with the renal functions soon leaves the tissues charged with waste products, which prevent the usual firming of the flesh, it remaining soft and sticky or clammy to the touch and gives out a loathsome urinous odor. Such flesh should be condemned.

Cold abscesses may be found in all parts of the animal carcass but are most frequently found attached to a thoracic or abdominal viscus. There is very rarely more than one in any

individual and they vary greatly in size. They are most frequently found in young, highly developed and rapidly fattened cattle which present every appearance of perfect healthfulness. They consist of a very dense limiting membrane enclosing a whitish, odorless purulent fluid which is rather gruesome to look upon, but innocuous. There is no morbid disturbance in the structures contiguous to such abscesses, and they can be enucleated leaving the carcass wholesome food.

An occasional case of pyæmia or multiple abscesses throughout the body is met with. Investigation usually reveals the source of infection in a suppurating wound or purulent inflammation of the uterus or serous membrane, these are cases of septic infection from a retained foetus or placenta, or from a gangrenous organ or wound will call for condemnation. The carcass in such cases gives out an offensive odor and does not dry and harden when placed in the cooler.

Genuine jaundice is seldom seen and when found indicates condemnation. A pseudo-jaundice is very abundant and is due to the peculiar coloring of fatty tissues. It will be noticed that the fat of animals which are in a thriving and improving condition is yellowish white, and the fat of those in a retrograding condition is more highly colored, even acquiring a dark orange yellow color, giving the carcass a jaundiced appearance.

Some southern cattle are infested with flukes. These parasites may be sufficiently numerous to channel the liver in all portions and stimulate new growth of tissue elements sufficiently to double or quadruple its normal size, yet the appearance of the carcass is normal and appetizing. The liver alone is rendered objectionable.

The *cysticercus bovis* is very rarely found in cattle coming from the region west of the Mississippi River. The cysts are usually most numerous in the muscles of the cheek, they are about the size of a navy bean and consist of a cyst wall enclosing a small tapeworm head and a quantity of limpid transparent fluid. The presence of this parasite (one source of tapeworm in man) indicates condemnation.

Sheep which come to the western markets are less subject to disease than cattle and hogs. The most frequent cause for condemnation is emaciation. Some of the sheep from Mexico, New Mexico and Colorado are infested with tapeworms which are so numerous in the small intestines and bile ducts that the nutritive functions are greatly interfered with. There is no fat and little muscle on the carcass, and that little is so devoid of the normal constituents that it remains soft and flabby under the same conditions in which the carcasses of healthy, well nourished animals become dry and firm.

Jaundice is quite common and seems to be dependent upon pathological derangement of the liver, usually inflammation of that organ, but occasionally atrophy or sclerosis of the hepatic tissues. Some cases of jaundice found in sheep shipped from western ranges are probably cases of ictero-hæmaturia; the spleen is large, the liver is black and friable, the bladder full of high colored urine, the skin and other tissues stained intensely yellow. Condemnation is indicated in these cases.

A disease somewhat resembling tuberculosis is found in sheep grazed on the plains of Colorado and Utah. It is characterized by the development of caseous masses in the lungs and thoracic glands, the glandular masses often becoming two or three inches in diameter and even greater. I do not remember to have seen the extension of this disease to any tissues or organs outside the thoracic cavity. The disease is essentially chronic and apparently does not interfere with the thriftiness of the animal until large areas of the lungs and numerous glands are invaded and destroyed. When the health of the animal has been impaired by this disease it would seem self-evident that the carcass should not be used as food. In all cases the organs invaded should be destroyed.

Another disease somewhat resembling tuberculosis is found in the walls of the intestines and in the mesenteric glands. It consists of nodules of various sizes made up of adventitious tissue enclosing caseous pus, and sometimes there is found in addition small round worms, the *Hypostomum Columbiana*. This is

known as the nodular disease, and its only apparent effect is the rendering of the intestines valueless as sausage casings. In all wounds, abscess, septic conditions, advanced pregnancy, etc., the same rules for condemnation apply as in cattle.

Many sheep are the bearers of the cystic *tænia marginata*, (bladder worms) which are mostly found attached to the folds of the peritoneum; as they are harmless to man the carcass is wholesome food, but butchers should be required to remove all cysts and put them into the furnace or retort (in order that they may not be thrown to dogs, in whose intestines they become mature tapeworms).

A few cases of scab have come under my notice, in which inflammatory processes extended beneath the skin. The animals were anæmic and apparently subjects of septic poison. These cases were condemned.

Swine are subject to bruise and fracture during transportation, also to many diseases identical with those of cattle, and the same principles apply to determining the wholesomeness of the flesh for food. There are some special diseases of swine of which hog cholera and swine plague are the most important. These two diseases are frequently associated in the same animal.

It is the common custom of stock owners to ship their herds to market when contagious diseases develop in them, regardless of their fitness or fatness and sell them for what they will bring, in order to avoid a greater financial loss. More especially is this the case when the animals are swine affected with cholera. In the stage of invasion or in mild cases none of the physical signs are sufficiently marked to indicate the diseased hog when driven into the slaughtering pen, but in the more advanced stages of ordinary virulence, the sick hog lags behind, has a staggering gait, may cough violently, and is so exhausted by a short drive that a spasmodic action of the diaphragm (commonly called thumps) is present in many cases. When allowed to stop the snout is dropped to the ground, the back arched, the abdomen tucked up, and vomiting, purging or both occur if the animal has access to water, which follows its endeavor to quench an insatiable thirst.

Red discolorations of the skin are usually present in various parts, the ears are frequently swollen to twice or three times the normal size and thickness and occasional necroses of the skin and subcutaneous tissues occur upon the ears and other parts which have been bruised. When slaughtered, and the hair and cuticular layer of the skin are removed in the usual process of preparing the carcass for food, the hæmorrhagic discolorations of the skin which are present in nearly all cases of cholera will attract the inspector's notice. These discolorations vary from a bright red color in recent cases to a dark gray pigmentation in convalescing cases. They may vary in size from small lenticular spots on the legs, jowl and neck, to blotches several inches in diameter situated on any part of the body.

Strokes of the whip or other light contusions of the skin will produce light red marks in healthy hogs, but in cases of cholera the color is dark red and extends a considerable distance from the injury.

Hæmorrhages also occur into the subcutaneous fat from very slight contusions and show as dark spots under the skin. In cases of several days' standing these hæmorrhagic areas often necrose, and an incision through the skin reveals a quantity of dirty brown putrid fluid. The overlying skin will slough if the animal lives long enough. The lymphatic glands in all parts of the body present hæmorrhagic lesions, which vary from redness of the periphera to a dark bloody discoloration of the entire glandular mass. Extravasations of blood beneath the serous membranes are often quite extensive, especially in the lungs, mesenteric folds and leaf lard. In mild cases the kidneys are studded with minute points of coagulated blood, and in violent cases the pelvis and capsules may contain extensive clots of blood. The characteristic exudation nodes (buttons of Welch) and ulcerations of the intestinal mucus membrane are rarely difficult to find, especially in the region of the ilio-cæcal valve and may be confidently looked for to confirm a doubtful diagnosis. The hæmorrhagic lesions of the skin, lymphatic glands and serous membranes are usually sufficiently marked to render

a diagnosis certain, but these lesions are sometimes very slight, and an examination of the intestinal tract may be necessary to determine whether an incipient pneumonia or false membrane present, in a given animal, is due to cholera or swine plague, or other causes. The hæmorrhagic lesions are often not conspicuous and may be readily overlooked when hogs are being slaughtered at the rate of 200 to 500 per hour. Swine plague is usually manifested by a congested condition of the skin covering a large area, either one-half or two-thirds of the entire carcass, giving it the appearance of a deep red blush. The internal lesions are most pronounced in the lungs, being a form of pneumonia in which yellowish points are discerned, these points being necrotic spots or centres. The serous surfaces of the lungs as well as all other serous surfaces may be covered with a fibrinous exudate either in a thin layer or in many layers, and when the abdominal viscera is the region more generally involved, all of the viscera are agglutinated together. This condition ought readily to be discriminated from simple peritonitis, pleuritis or pericarditis, by involvement of the serous surfaces in other parts of the body and by the characteristic appearance of the lungs and skin. A diagnosis of hog cholera or swine plague should always mean condemnation of carcass and viscera.

Swine infested with *cysticercus cellulosæ* are found occasionally. In the few cases I have seen, cysticerci were present in great number, pervading all the voluntary muscular structures and the heart. When found elsewhere the cysts were imperfectly developed. They appear as little sacs of water about one-fourth of an inch in diameter, lying upon and wedged between the muscular fibres. Each sac contains a white mass about the size of a millet seed (a tapeworm head) which projects inward from the cyst wall. Flesh containing these cysts is commonly denominated measly pork and is the source of tapeworm (*tania solum*) in man. Of course the flesh would be rendered harmless if thoroughly cooked, but would remain disgusting, and should be condemned.

The cystic form of the *echinococcus veterinorum* is very common in swine and the hydatids are found almost exclusively in the liver. While the authors have reported the finding of this cystic parasite in all parts of the body of both man and animals, medical and veterinary records do not show such a widespread diffusion in this section of country. The cysts vary in size from $\frac{1}{4}$ to 2 or 3 inches in diameter and consist of a translucent double wall enclosing its full capacity of transparent liquid. The inner wall (mother membrane) is easily separated from the outer wall, and if divided it persistently rolls upon itself when effort is made to spread it flat upon a surface. The inner surface of this wall or membrane usually bears many minute whitish bodies, only observable upon close examination. These bodies are made up of from 10 to 20 tapeworm heads, which are plainly visible upon 50 to 100 diameter magnification. The cyst and contents are modified by degenerate processes and may be converted into abscesses. They are found on the surface or embedded in the substance of the liver and vary in number from one to many. Infested organs should be rendered unusable as food for man and beast.

The report of the Department of Agriculture states that three and one-twentieth per cent. of all hogs examined microscopically by the department during the fiscal year ending June 30, 1893, were infested with trichinæ. As the number examined exceeded one and one-half millions, it is evident that this parasite is wide-spread and very prevalent. Trichinæ produce no gross lesions in the infested animal, and are detected only by aid of the microscope. They are found almost exclusively in the muscular structures, and are most numerous in the tongue, diaphragm and psoæ muscles, but are confined to no section of the carcass. They are readily detected when magnified thirty to sixty diameters, and specimens of muscle, either fresh or cured, are easily prepared for examination, either by mincing or cutting it into small pieces and spreading between glass slips thin enough to permit light to pass through. The trichinæ are usually found coiled like spiral springs and are enclosed in sacs of

transparent fluid, usually one in a cyst, but sometimes two or three and even five or six. The cyst and contents including the worm are subject to both fatty and calcareous degeneration; in the latter form of degeneration the trichinæ are often black and fragile, being frequently broken into fragments in the preparation for examination. Trichinized flesh does not differ from the non-infested flesh in appearance and is harmful as food only when eaten uncooked. The communities and nations which eat their pork raw naturally require the inspection and condemnation of trichinized pork.

This presentation in short review of the gross diagnostic lesions of diseases and conditions of food animals, and comments as to the disposition of the flesh is all too brief, but may serve to open the discussion. Diseases and conditions which have not come under the writer's personal observation have been purposely omitted.

IMPORTANCE OF COUGH IN A CLINICAL SENSE.

BY W. E. A. WYMAN, V. S., CLEMSON COLLEGE, S. C.

Presented as a Thesis to the Faculty of the McKillip Veterinary College, Chicago,
April, 1898.

Physiological Considerations.—By cough is understood a sudden reflectory act depending on the irritation of the cough centre in the medulla oblongata. Cough is one of the most important factors in *physiological expectoration*, being an involuntary act in the horse. Cough therefore is a symptom, the result of a stimulation of its centre in the medulla, which may be of central or peripheral origin. Any stimulation of the cough centre calls forth a centrifugal stimulation of the *inferior laryngeal nerve*—the motor nerve of the larynx—and a clonic spasm of the glottis results; at the same time centrifugal stimulation of the motor nerves of the auxiliary muscles of respiration follows. This results in a sudden high tension of the column of air below the glottis, which overcomes the muscular opposition of the laryngeal muscles and that peculiar act—termed cough—bursts forth.

Of primary importance in the production of cough is the *vagus*, as it supplies with sensation the pleura and the mucous membrane of the trachea and parts below ; the *superior laryngeal nerves* also come into consideration, as they constitute the sensory apparatus of the laryngeal mucosa. Cough due to central irritation is rare. The same refers to cough finding its origin in irritative processes located in the ovaries, uterus, bladder, stomach, external auditory meatus and nasal cavity.

The quality of cough varies very much in the domestic animals ; this depends on the anatomical arrangement of the vocal cords, the pharyngeal and buccal cavities and sinuses of the head. Thus the cough of the horse is sonorous and short, while the ox produces a weaker and dull sound.

Classification of Coughs.—

1. From an anatomical point of view : Open glottis cough ; closed glottis cough.
2. From a regional point of view : Laryngeal cough. Tracheal cough. Thoracic cough ; (a) bronchial, (b) pulmonary.
3. As to its course : Acute cough, chronic cough.
4. As to its origin : Spontaneous cough, artificial cough.
5. As to its properties : Long or short ; strong or weak ; painful or painless ; dry, tight, or moist and loose, frequent or occasional, hollow, barking, wheezing, paroxysmal, strangling, evasive and suppressed.

The irritating agent may be introduced from without, such as dust, smoke, gases, medicines improperly administered, etc. ; or the agent may arise within, as inflammatory products from the lungs or bronchi, which, on reaching a sensitive mucous membrane, as that of the larynx, for instance, stimulate the cough centre. The laryngeal mucous membrane requires but little irritation to produce cough when either acutely or chronically diseased. Quick movements, as getting up, turning the head suddenly, drinking water, especially when cold, cause coughing.

From a clinical standpoint cough is of value as it helps to determine the region, the extent, the intensity and frequently

the duration of the disease producing the reflex act. Of course I do not wish to convey the idea that cough will lead to a positive diagnosis as to the seat of the trouble in every instance. Nevertheless, the artificially produced cough or the spontaneous cough is often diagnostic to the experienced ear and may under certain conditions be a decisive factor. I need only remind of the short, weak, painful and evasive cough of an acute pleurisy. Friedberger and Fröhner say that a definite disease cannot be diagnosed by the quality of the cough only. The trained ear of the American practitioner at the same time quickly recognizes by the character of the cough a laryngitis, pneumonia or pleurisy or even a bronchitis not to be detected by auscultation. Therefore, the diagnostic importance of cough cannot be overestimated.

Cough indicates a diseased state of some portion of the respiratory tract; its quality being distinctly shaped as to the seat of the irritative process. Consequently both artificial and spontaneous coughs are fundamental guides in the diagnosis of diseases of the respiratory apparatus. When an animal is coughed by slight pressure upon the trachea or larynx, it is apparent that the part or parts compressed are hyperasthetic, while the nature of the cough thus induced reveals the region if not the seat and often the stage and intensity of the morbid process.

When spontaneous cough is present and slight pressure upon the larynx or trachea yields negative results, it is reasonable to presume that the source of the cough lies below the point compressed during the examination. At the same time cough resulting from compression of the larynx or trachea as practiced to produce artificial cough does not necessarily indicate exclusive disease of the laryngeal or tracheal mucous membranes, as the mucous membranes of the bronchi may also be involved. In such a case the nature of the cough would be a valuable guide. Lymphatic animals and those with a short neck are often difficult to cough.

In acute and chronic diseases of the mucosæ of the respiratory tract of a superficial type are always accompanied with

cough; but when the irritability of the sensory nerves is destroyed as by infiltration of the submucosa, cough of necessity is absent. The impossibility to produce cough when the sensorium is depressed is always a bad omen. The forcible expiration, that is cough, is followed by a more or less rapid entrance of air into the air-passages. This gives rise to a slightly wheezing inspiratory sound, especially marked in angina laryngea and confirmed roarers. In the earliest stages of a laryngitis acuta this wheezing inspiratory sound is often the only diagnostic symptom, barring a slight rise of temperature.

Animals have no motive to cough and for this reason cough must be a valuable agent from a diagnostic standpoint. But we must remember that cough is under the influence of the will of the animal to a certain extent. We often see the horse make desperate attempts to modify the intensity of the cough. He will stretch the neck, move the lips as if mumbling, shake the head, paw and finally an evasive cough makes its appearance.

Of the various mucous membranes which when irritated would cause the animal to cough, the one of the larynx ranks foremost next that of the bronchi and finally that of the trachea, while the alveolar parenchyma has no nerves which might induce cough. The mucosa of the trachea will permit, when in a normal state and when diseased, a great deal of insult before cough is produced. For instance, swabbing it during an arytenectomy gives negative results with regard to cough. Artificial cough produced by pressing with the fingers upon the region of the arytenoids or superior extremity of the trachea will as a rule cause the animal to cough from one to four times in succession. To induce the animal to cough quite some compression is required, while cough following slight pressure upon these parts is suggestive of an irritative state.

Of the many acute and chronic diseases of the respiratory tract accompanied by cough, the following are of special interest from a clinical standpoint:

1. Pharyngo-laryngeal lesions.
2. Acute and chronic laryngitis.

3. Acute and chronic bronchitis.
4. Pneumonia.
5. Pleurisy.

1.—*Pharyngo-laryngeal lesions*, produced, for instance, by the irritative process accompanying eruption of the sixth molar or the presence of a foreign body, such as the larva of the *œstrus equi*, once observed by the writer, is accompanied by a cough closely resembling a purely laryngeal cough. In the latter instance the animal coughed frequently in a distressing manner and was very sensitive on pressure over the region of the arytenoids. The larva was situated close to the base of the epiglottis.

2.—*Acute laryngitis* gives rise to a frequent, distressing spasmodic cough, each cough being followed by a wheezing inspiratory sound. Depending on the stage of the phlegmasia the cough may be strong, short, painful, hollow, wheezing or strangling. The animal is easily coughed on pressure, stretching the neck while doing so. This peculiar cough, either coughed with an open or closed glottis, with its subsequent wheezing inspiration, the peculiar stretched state of the head and neck, the anxious expression of the eyes and the attempts to modify or suppress the cough are absolutely characteristic.

Chronic laryngitis is accompanied by an occasional, open glottis cough, short, tight, somewhat barking in character. This cough manifests itself especially when the animal leaves a warm stable and reaches a cold atmosphere; further, when going beyond a certain speed, cough is apt to appear. In this disease the tendency to cough is greater at one time than at another. Slight pressure, especially when exerted upon the posterior portion of the larynx—the pars respiratoria—is productive of cough.

3. *Acute bronchitis*.—Depending on the extent and intensity of the diseased area, the cough is often short and sharp, or when severe, exceedingly painful, short, evasive, tight. In such a case there are regular paroxysms distressing to witness, the animal coughing with a partially closed glottis.

Chronic bronchitis.—The cough of chronic bronchitis as a matter of scientific interest may be subdivided into that of (1) Tracheo-bronchitis. (2) Chronic catarrh and ectasia of the middle sized and small bronchioles. (3) Chronic capillary bronchitis.

The cough of 1 is distressing, usually paroxysmal, a strong rough cough, a full volume of air being expelled.

The cough of 2 is usually short, moist and interrupted; in old animals weak. Such animals are most apt to cough while moving along, especially when first starting out. Then again they may be most likely to cough when in the stable in the early morning hours. One peculiarity of this cough lies in the fact that it increases as more roughage is fed.

The cough of 3 is mostly sharp, short and low, often abortive.

The coughs described under 2 and 3 are the ones usually met with in the heavy horse, the cough of which may be truly called an abortive one, as all preparations are made to give vent to a full cough, aborted by the existing pathological lesions.

4. *Pneumonia.*—The cough is sharp, deep, evasive and short; the animal coughing a number of times in succession, followed by a pause free from coughing.

5. *Pleurisy.*—The cough of pleurisy is short, painful, weak and evasive. The animal tries to modify the cough which, when brought forth, resembles more a groan than anything else. This evasive, of necessity weak cough is suppressed to a certain extent by the will of the animal in order to avoid succussion, which would follow free coughing. The fixed state of the ribs when coughing is quite peculiar to pain in or near the thoracic walls. The latter is seen in the cough of *pleurodynia*, which resembles that of pleurisy closely; here the almost normal state of the pulse and absence of fever settle the question.

In conclusion, I repeat that cough in itself is not always sufficient to make a conscientious diagnosis; for instance, in *pulmonary œdema* but little cough is present; the same refers to

emphysema; this is easily explained by the fact that those parts are not endowed with nerves capable of producing the reflex act-cough. The cough therefore of the heavy horse does not depend on the lung lesions as far as the alveolar parenchyma is concerned, but is due to the *chronic bronchitis* and its sequelæ which almost invariably accompany it. Thus again the cough of a *hypostatic pneumonia* or a cough of *deglutition pneumonia* cannot be differentiated. Thus an *acute bronchiolitis* and *pneumonia* give rise of necessity to a very similar cough, while the cough of a *gangrenous pneumonia* is characterized by its disagreeable, sweetish, nauseating odor.

Altogether cough from a clinical standpoint is of enormous value to the equine practitioner, the chances of auscultation and certainly those of percussion being so limited. Many a slight *pneumonia*, *pleurisy*, *bronchitis*, *laryngeal angina* would remain a clinical guess were it not for either artificial or spontaneous cough, at least regional in character.

THE SCIENCE VERSUS THE ART OF VETERINARY SURGERY.

BY ROBERT W. ELLIS, D.V.S., NEW YORK CITY.

A Paper read before the Eighth Annual Meeting of the New York State Veterinary Medical Society, Sept. 14, 15, 1898.

Essay writing is not my strong point, so upon being requested to present something at this meeting I have jotted down a few thoughts as they have presented themselves to me, under the imposing title of "The Science versus the Art of Veterinary Surgery."

In looking over the field of surgery with its advances in the various operations for the alleviation of pathological conditions, as well as for other advantages to be derived from them, the question has presented itself to me, is the art of surgery keeping abreast with the science in general practice? And in looking about me for an answer to the question, my observations have all led me to believe that it is not. Among the advances we

note the introduction of new operations for the alleviation of pathological conditions which were incurable previous to their introduction; as for roaring, due to "laryngeal hemiplegia," "arytenectomy," and the still more recent "arytenoideraphy" for the alleviation of the same condition. And for "chronic tendonitis," "periostosis of the fetlock" and like conditions that resist firing, blistering and other modes of treatment, there is relief to be obtained by "mesoneurectomy," "median neurotomy." And, besides the new operations that are continually being presented, there are new and advanced methods of performing old operations made possible by strict "asepsis."

One circumstance which leads me to this unwilling conclusion is, that there are comparatively few men in general practice who ever attempt any of the classic operations, and not a few who evade the more ordinary ones, even if their results by other modes of treatment are not so beneficial. Yet, I have heard some of those same men earnestly proclaiming to some interested listener the great strides that have been made in veterinary surgery and telling of the different new operations now in vogue, in a manner sufficiently convincing that they were not at all behind in the literature of the day on those subjects, although entirely wanting in the application of the methods they were describing, having never performed them themselves, but contentedly basking in the reflection of the glory of those members of the profession that had. Such content, gentlemen, and the feeling that "such operations are all right for Prof. So and So, but are too much for me," is the secret to a great extent of the art of surgery not keeping abreast with the science in general practice. And should each one of us ask ourselves the question, "Am I up to my ideal veterinary operator or am I on my way to getting up to my ideal?" Or, on the other hand, "Am I not possibly behind some of the bold, though perhaps less 'scientific operators' of a decade ago?" Which of the two questions, gentlemen, would many of us have to answer in the affirmative? I fear, the latter.

Now, the next question that would naturally present itself is, why is this so?

I think to some extent (but to how great an extent I am not prepared to say) to lack of inclination or adaptability to that particular branch of practice, which soon results in the feeling of "content" before alluded to. But I believe another and perhaps the principal reason is the lack of a sufficient number of the variety of cases in general practice to attain proficiency in some of the more delicate and "classical" operations. Another reason is that every veterinarian is not fortunate enough in the beginning to have facilities, such as suitable places to operate, etc., or he, at least, feels that he has not, coming as he does just fresh from college, where he has been accustomed to seeing operations performed in spacious operating rooms with all the necessary appointments, and he is very apt to send the case to some one that has, expecting to be better prepared later on. If he is in the vicinity of a veterinary college, he sends the patient there, and thus it is that you will observe "house surgeons" in college hospitals almost invariably become good operators by being constantly brought in contact with that kind of work. In other words, a "fellow-graduate" of the house surgeon goes out to build up a practice just as well prepared for his work as the house surgeon, but finally when he meets a case that requires some "special operation" he reflects that "he has not the facilities yet to handle that case," and so sends it to the "college hospital." That is an operation lost to him and gained by the "house surgeon," and in that way, he runs back while his classmate goes ahead. In other words, the "art of surgery" with him has not kept abreast with the science, for during all his spare moments he has been reading the current literature of the day, possibly has bought a new book or two on surgery, and has learned with much interest of one or two new operations that have come into veterinary surgery since he has graduated, all of which have undoubtedly been performed at the veterinary schools since that time also. These remarks, gentlemen, remember,

apply principally to "classical operations" of the nature of those mentioned in the beginning of my paper, although many of the operations performed by some of us in our every-day work, such as "neurotomy," both "median" and "plantar," bitch "spaying," "castration of the male," to say nothing of the more common operations of "firing," etc., are entirely evaded by some. Assuming, then, that I am right in stating that the "art of surgery" does not keep abreast with the "science" in general practice, you will admit that this is not as it should be; that point being admitted, a remedy of the condition is perhaps not out of place for consideration in this paper.

In reference to the first class of practitioners mentioned, viz.:—those entirely disinclined, and consequently unsuited for that particular branch of practice, nothing is to be said, as they have a perfect right to leave that branch for those so inclined if they wish to do so, but for practitioners in general, operating more or less in minor surgery; but who have never attempted the more intricate, and, perhaps, we might add, more recent operations, I believe, that a realization on their part that the principles of surgery are the same, no matter in what class the operation may rank, and that in the higher class operations simply an application of the same rules and principles is required, as in more simple ones (except that perhaps more care and skill is required in their application) will tend strongly toward removing the imaginary gulf between the two classes.

So that to prepare for a new and perhaps difficult operation is simply to make a careful review of the regional anatomy, study the steps of the operation carefully from the literature on it, get the details as to what instruments, etc., are required for the particular operation in question, and then proceed, carefully yet boldly and confidently, knowing that you have the details all in your mind and feeling that as a surgeon you are capable of carrying them out; and, as a rule, success will crown your efforts. Again, for those who do not feel disposed to undergo the mental strain of performing a delicate operation

for the first time upon a valuable animal, belonging, perhaps, to a valuable client, but who would prefer entering upon it with that ease and confidence born of familiarity, veterinary surgery offers us the advantage of being able to procure a valueless subject for experimentation, and in the more delicate operations, especially if a man has never performed any in that class, I think this plan advisable, for, although he would probably perform the operation all right the first time if he had given the proper amount of attention to the details of it, regional anatomy, etc., by way of preparation, he would certainly perform it better, or, perhaps, I should say, easier, the second time. The presence in these experimental operations of a practitioner familiar with it, will materially aid in getting the details readily. The extended day sessions of our National Association renders it possible to have practical operative surgery as part of the programme, which is, of course, incompatible with the short evening sessions of our local associations, meeting monthly, quarterly, etc., to say nothing of the indisposition of the members to entering into such a programme after their routine of work all day. They more naturally, after their dinner, prefer sitting in a comfortable meeting room and listening to a paper or discussion on some interesting subject by fellow members or themselves entertaining by the same means.

And at these meetings, if occasional papers were read by members describing their particular *modus operandi* in certain operations performed by them, they would, with the discussions that would naturally follow, prove extremely interesting and instructive, and tend to improve our methods of operating by a healthy exchange of ideas (you are all familiar with the evils of in-and-in breeding) for while we are cognizant of the benefits to be derived from scientific intercourse, which we all concede tends to advance us, we must see to it that we advance symmetrically; for, like growing plants, we must have a tendency to lean toward the side upon which the sun shines most, and I feel certain that papers on "operative surgery" are painfully in the minority; at least in our local association meetings. I am sure

that there are not a few of us who would at least like to become more familiar with such operations as "arytenoideraphy," "arytenectomy," "median neurotomy," "castration of cryptorchids," "caponizing," "amputation of the penis," "extirpation of the clitoris," and "ovariotomy" in mares afflicted with "nymphomania," and perhaps many others which I could mention were you not all familiar with them; and papers of that order would, I think, act as a stimulus for us to perform more of the higher class operations either therapeutically or experimentally, and thereby tend to advance the "Art of Surgery" equally with the "Science" in general practice. To sum up, then, I have arrived at the following conclusions:

1st. That the "Art of Surgery" has not kept pace with the "Science" in general practice.

2d. That such is the case through a failure on the part of practitioners to realize that the principles of surgery are the same in all classes of operations.

3d. That said principles can be applied in operations of any class, by graduates in veterinary surgery, by a careful study of the details pertaining to each particular operation.

4th. That every practitioner owes it, as a duty to himself and his clients, to keep himself up-to-date in the "Art of Surgery" just as much as in the use of new drugs for the relief of pathological conditions, so that he may be prepared at any time to perform any operation that may present itself to him.

5th. That there are comparatively few papers pertaining to operative surgery presented at our association meetings, and,

6th. That an increase in such papers would produce an increase of interest and a desire to perform many operations previously considered beyond us as a result, and the problem of how to advance the "Art of Surgery" with the science thereby solved.

Now, gentlemen, while I realize that my paper has not done justice to its title and that I have, at best, made but a superficial survey of the subject which I have attempted to cover, I hope that it will at least suffice to elicit the valuable opinions of some of my colleagues present that we may all profit by them.

GLANDERS AND ITS MORTALITY.

BY JAMES LAW, M. R. C. V. S., ITHACA, N. Y.

A Paper read before the New York State Veterinary Medicine Society, Sept. 14-15, 1898.

At the Buffalo meeting of this society I rather shocked some members by saying that recoveries from glanders were not uncommon in America, and that when we reached the clear dry air of the Plains and Rocky Mountains, and under a continuous outdoor life, recovery might rather be said to be the rule than the exception. One member was so astounded at such a statement that he expressed the hope that it should not be allowed to get into print.

Last November a somewhat similar reception was given to the same statement from Nocard, in Moscow, and when by mistranslation in the English journals he was made to claim cures instead of recoveries, the outcry was not a little amusing.

But in these days of bacteriological demonstrations and of mallein and tuberculin tests, preconceived ideas are made to give way and long cherished doctrines have to be set aside. The acceptance of the new truth does not always make our course the easier nor the more pleasant, though it does give the comforting conviction that our knowledge is founded on a sounder and more substantial basis. It is not pleasant to have an important and influential layman, interested in one's sanitary work, and anxious to support it, say of one of the familiar animal plagues (glanders, tuberculosis, lung plague), "but the animal never recovers." Anxious as he is to give your work an unassailable ground, his question virtually implies that if there is a chance of recovery, the slaughter for sanitary reasons is a questionable procedure. One feels himself at a disadvantage in having to enter on an explanation of the economic and moral reasons for making a speedy end of an infection-factory, on the simple ground of the advantage to others. But when truth is involved we must not hesitate to hold that supreme, and when we must carry out unpalatable work, we must place it on a foundation which will stand the rays of the sun.

If we go back to the early days of the century we find that European veterinarians acknowledged that glanders was not necessarily fatal, for chronic skin glanders (farcy) was habitually treated and many cases appeared to recover. The fatality was inevitable only, it was believed, in the case of implication of internal organs, including in these the nasal mucosa. In addition to this Percivall, Sewell, Vines, Turner and Morton recorded cases of recovery from chronic glanders of the nasal mucosa itself. But with the rank and file of the profession, the inevitable fatality of glanders has remained a firm conviction to the present time.

The only experience in America, in the hot, dry season of 1868, soon convinced me that I had to deal with conditions with which I had been hitherto unacquainted. In my inland town, there was a remarkable absence of coughs and colds, and especially of abundant catarrhal expectoration. Tuberculosis and scrofula were common, but the copious sputa of western Europe was very little in evidence. The morbid secretions were largely suppressed. Wounds healed more readily and I confidently undertook operations before which I would have hesitated in the Old World.

Soon I was called to see a case of advanced nasal glanders in an aged horse, which presented all the characteristic symptoms and when killed the post-mortem lesions of the disease. A young black team standing beside this horse showed the glanders congestion and ulcers on a more limited scale, with the significant, small, nodular, insensible submaxillary swellings. I counselled their destruction, but the owner, who was very proud of them, begged to have them treated. They were put on strychnia arsenite, sodium hyposulphite and sulphurous inhalations, with good hygiene. Slowly the ulcers healed, the submaxillary swellings disappeared, and, though both horses were kept for twenty years in a stable with a dozen others, no further case of glanders developed. I need not say that disinfection had been carefully attended to.

A second experience was had on a farm with five horses,

which could be kept well apart from others. Four were affected with skin and intermuscular glanders, including several very large abscesses with glairy contents. Here again the owner could not reconcile himself to the killing of the animals, and they were subjected to a lengthy and, finally successful treatment. For a number of years they have been to all appearances well.

Another case was the horse of a lady physician which was accustomed to use the same manger as did the horses of the brother-in-law, several of which were killed as cases of confirmed glanders. This case had but one small nasal ulcer visible and slight nodular enlargement of a submaxillary lymph gland. It was strictly secluded with the intention of having it destroyed, but a week later I could find neither ulcer nor glandular swelling; the horse had apparently recovered and remained so. As serving to further identify the disease, it may be stated that one of the group of condemned horses was smuggled off into another county, where I found and killed him months afterwards suffering from unequivocal chronic glanders.

My most interesting experience, however, was on a large horse-breeding ranch on the elevated plains of Wyoming. This stud had been for years losing horses from a disease which the territorial veterinarian found it difficult to diagnose. It showed the symptoms of glanders, but so large a proportion recovered that he was not prepared to discard his cherished education and belief and call it by that name. A short time before my visit one of the cowboys died of a disease which was variously diagnosed as black smallpox, malignant measles, and rothelu, but which from the symptoms was undoubtedly acute cutaneous glanders.

On this ranch I examined 200 horses coralled because of suspicion, and found over 50 head suffering from unmistakable glanders. Several mules had just died and the lesions found in nose and lungs were of the most pronounced and aggravated character. I still preserve specimens obtained from these animals showing the most characteristic and advanced lesions.

It is noteworthy that I passed as without symptoms of glanders, horses that the territorial veterinarian had condemned about ten days before, and he, in turn, a fortnight later, failed to find any lesions of glanders in a number that I had condemned. During my visit I daily rode behind a powerful buckskin gelding, which the owner assured me had been a pronounced case in the preceding year. I could recognize no evidence of lesion in the nose, the submaxillary glands, the skin nor the lungs. He had to all appearances made a complete recovery.

This all happened before the days of the mallein test. Since the introduction of the mallein test it has become possible to identify glanders in slight and occult cases which would formerly have passed undetected. It has also become possible to attest actual recoveries, by the persistent lack of response to the mallein test which had at first produced strong reaction. The recognition of recoveries, even in Europe, has accordingly become more frequent. The most noticeable papers on the subject have been those of Prieur and Nocard. Prieur as the result of observations on man and horse notes the frequent recovery from skin glanders in man and horse, and the recovery of the horse from even lung glanders in certain cases.

Nocard gives the results of observations on three large studs and on horses from different regiments.

At the remount depot of Montoire the whole stud was tested and a considerable number reacted which showed no visible sign of glanders. Eleven of the horses that had failed to react were killed and all showed miliary glanders nodules in the lungs, which, however, showed no inflammatory areole. These Nocard held to be recovered cases. Out of 233 horses tested 136 reacted, and of these latter 78, after remaining picketed in the open air for five to six months, and after repeated failure to react, were sent into regiments and for five years have shown no sign of glanders.

In a depot of the Paris Tramways Co., out of 160 horses 29 reacted, three only showing the usual clinical symptoms. These and 12 others were killed and all showed pulmonary nodules.

Of the remaining 14, which were carefully secluded, 11 failed to react after a month, and were returned to hard work ; they remained sound and again failed to react when tested after 10 months more.

The General Carriage Co., of Paris, had 10,230 horses tested, 2037 of which reacted, and of these 687 showed later the clinical symptoms of glanders. Of the remainder, 338 ceased to react to mallein and were returned to the depots and to work. A large proportion of these have been since cast on account of age and accidents, and the necropsy in every case revealed old pulmonary lesions, which had become fibrous or calcified, and from which no cultures could be obtained.

In the Russian cavalry at Charkoff 658 were tested with mallein, of which 368 reacted. These were isolated and watched for several months, and again and again tested with mallein, with the result that the great majority ceased to react, were returned to the regiment and showed no further sign of glanders.

These cases show that the milder forms of glanders, even in Western Europe, where the disease is more redoubtable than in our dry inland States, do actually recover, and it opens the question in all such cases whether it will be more profitable to destroy them at once, or to seclude them under proper care and hygiene, until the favorable cases shall recover.

The same question arises in the case of tuberculosis in cattle. Many react to tuberculin which are only slightly affected and which, under favorable conditions, would be likely to recover. The question arises whether it is possible in the individual case to secure perfect segregation under favorable hygienic conditions and wait for recoveries ; and the further question as to whether it will be profitable even if feasible. In both cases alike the question is primarily one of sanitation, and secondarily one of economics. 1st, can the preservation be made with perfect safety to others ? and, 2d, after safety can be assured, will the undertaking be a sound one financially or will it be a losing concern ? The answers must be based on the varying circumstances of each particular case.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

"LEECHES," "HOOF ROT," "FOOT ROT," HOOF DISEASE, ETC.

By GERALD E. GRIFFIN, D.V.S., Fifth Cavalry, U. S. Army.

I don't hail from Florida, and particularly not that portion of it adjacent to Tampa, for which, O Lord, I thank thee; but I spent the summer there at the Government's expense and much against my inclination, for Tampa is not an ideal summer resort nor will it ever be, until Hades becomes congealed superiorly. In and around Tampa, and, I am informed, all over the peninsula, it is frequently irrigated by the clouds during the summer months (rainy season, in fact), but it doesn't rain—Jupiter Pluvius just knocks out the sea valves from the embanked nimbus and it simply floods the earth. The altitude of Tampa is not great—one foot and a few inches, more or less. The rain floods collect in the depressions in the palmetto swamps, and, lo! in a few minutes you have a lake where once you had a promenade. The government teamster takes advantage of these lakes and the unsuspecting army mule is led down there to partake of the waters at stated and occasionally irregular intervals. This plan saves the teamster from journeying to the designated water-trough, and at the same time the mule has the advantage of absorbing the tropical organic matter in the water—a kind of soup, as it were, and then the drink is not so cold as at the trough, the sun having gotten in his fine work on it; moreover, the mule doesn't have to walk so far, and, then, the mud cools off his heels, and the teamster believes in letting them keep cool, too. While all this was going on under my august observation, discretion kept me silent, being only the regimental horse doctor, supposed to be deaf, dumb and blind. We (the mules and I) were approached by the *genus homo* of the country (the aborigine, I believe is the word), known vulgarly as the "Cracker," a poor devil addicted to the use of quinine sulphate in large doses, followed at intervals of two days by Fakeman's liver pills, swamp root, chill tonic, and whiskey. Between doses he has them so bad that he shakes like a canine defecating an undigested osteological collection, and refers to his liver, which we were led to believe was, in the Florida "Cracker," situated in his lower abdominal region. He

warned us of "leeches" and their destructive qualities, and expatiated on their properties and habits. Well, as Mark Twain or some other fellow once remarked, "Where ignorance is bliss," etc., etc. We simply smiled at his "gag," and, although he appeared at varying intervals of time and at numerous places and tried to give it to us "dead straight," we always gave him the "deadly gleam." There came a day, however, when the wagon master reported several cases of "rope burn" and "cracked heels" in the train from the animals getting over halters, etc. He was given the same old "dope" to be applied A. M. and P. M., but its efficacy had fled, its magic had vanished, and when he of the wagon train came once more to say he had several more cases, and that the old ones were getting worse, we investigated, and, in the language of the classics, discovered that we were "up against it."

Here's a typical case: Monday night, O. K.; worked all day and ate. Tuesday morning, "off feed," very lame in hind or fore foot; puts only point of toe on ground; fetlock evidently inflamed, hot and sensitive to touch; looks like rope burn, but no abrasion. Wednesday, still "off feed," numerous small points or vesicles observed around the fetlock, between the coronary band and first phalangeal articulation, vesicles large in the region above heels, looks as if they had a depression in centre, caused by the tissue being eaten away. Thursday, animal begins to feed again, inflammation subsiding, and pus forming. Friday, a piece of dermis from the size of a dollar to the size of an ordinary envelope sloughs away, and becomes detached, exposing underneath a partly raw, ragged, foul-smelling ulcer. Saturday, discharge of foul-smelling pus, numerous soft granulations and an apparent separation of the heels from the foot. Saturday, enlargement of coronary band, entirely around in some cases, a detachment of the hoof from foot immediately below band, in some cases the separation is complete, and when foot is placed upon ground it conveys to the ear the sound produced by one walking barefooted in loose shoes filled with water; little pain present at this stage. Sunday, hoof comes off entirely in many cases, or if detachment is not complete tissues become dry and separative process is established. In a few severe cases sloughing of foot at second phalangeal articulation, and animal has to be destroyed immediately.

Treatment.—Cleanliness, strong antiseptic applications, actual cautery, bandages, perfect rest, laxatives, nitrate of silver solution, and close attention to details. When reparative pro-

cess commences recovery is rapid, and granulations healthy and easy to control; in sloughing of hoof, in field, destruction; in hospital, new hoof presumably.

Cause.—On the track, when regiment ordered to another State, not possessed of a microscope (wouldn't know how to use it intelligently if owned one), believe that a water insect about one-eighth of an inch long and resembling in appearance the ordinary screw worm, or a small bot, originates and is propagated in the shallow water around the margin of rainwater ponds in Southern Florida. As the animal enters the pond for drink or other purposes it is attacked, the insect penetrates the dermis and attacks the tissues beneath, with the results already mentioned. The insect is known locally as a "leech." I have not had but ten mild cases in twelve hundred horses of the regiment, but have had thirty-two cases in the wagon train of two hundred and sixty-one mules; five cases among the mules died from sloughing of hoof, or were shot to end suffering, one horse left behind and turned into the veterinary hospital at Tampa, I understand. The disease seldom attacks more than one foot of an animal. Of course, the general symptoms of the patient are those found in cases of severe local inflammations.

In two cases there was observed complete sloughing of the plantar nerve and blood vessels on both sides of the foot and immediately above the coronary band. Needless to remark these animals went up the flume; in seventy-five per cent. of the cases the disease did not make its appearance until we were on the train between Tampa and our new camp at Huntsville, Alabama. Horses were never washed in ponds, but some may have passed through.

THE DANGERS FROM THE USE OF ESERINE, PILOCARPINE, ETC.

By HUGH THOMSON, V. S., Shabbona, Ills.

I enclose a report of the death of the stallion Yataghan, by Lord Russell, from rupture of the stomach and strangulated hernia. I send you this report as the symptoms are so very different from those we generally see:

On October 11, 1898, about 6.30 P. M., a gentleman called at my place, saying Yataghan was sick. I asked him how he acted. The symptoms given were that he lies quiet, but occasionally rolls on his back; not very much pain and not bloated. I sent some cannabis indica down, telling him I would be there as soon as I could. I got there about 8 o'clock; found patient on his feet and quiet; had given 4 drachms of cannabis indica.

I inquired into the case and found that the owner had driven the horse about a five-minute gait for five miles ; had put him in the barn and given a handful of cornstalks, but he was not warm ; shortly after he showed symptoms of colic, when the owner sent for me, and also sent a dispatch for another veterinarian. I arrived and left before he came, as I was in ignorance of the dispatch being sent. On examination I found pulse normal, temperature and respirations slightly above normal ; eye bright ; no signs of bloating ; had passed fæces twice, also urinated. Diagnosed case as indigestion from cornstalks. Gave a ball of aloin, 3 ii ; calomel, 3 i. I stayed about one hour, and as the patient showed no pain, I left some *cannabis indica* and *belladonna* ; gave injection of soft water and soap, which he passed with quite a little fæces, but still showed no pain. I left with instructions to call me if he got in any pain, and should the medicine fail to quiet it. After I departed the other veterinarian arrived about 10 o'clock ; said the patient was not very sick (so the owner told me), but gave an injection hypodermically of what I should judge was *eserine* and *pilocarpine*, or *eserine* alone. It was not *barium chloride*, as the skin showed no effects of it at the point of injection. It set up considerable peristalsis ; then he went to bed, saying he would be all right in the morning. He was suffering terrible pain, rolling on his back, intense straining, but passing nothing. The owner sent for me three times. I arrived home about 7 that evening, but pulled right out for Shabbona Grove, arriving there at 7.45 ; got the history of the case since I had seen him last ; made an examination ; found animal pulseless ; strangulation of bowel in right inguinal ring, caused, in my opinion, by the *eserine*, as it was not there before. Animal lived about 15 minutes.

I held a post-mortem, and found the stomach badly torn, bowels showing there was a strangulation some place ; large intestines impacted with food ; small intestines completely empty ; abdominal cavity full of bloody fluid ; also piece of intestines, about six inches long, in the upper part of scrotum, but not extending down its entire depth ; this part of the bowel was also empty and showed no mortification, which it would have shown if it had been caused before the bowels emptied out.

The question I wish to ask is : Was this death caused by the *eserine* ? It is my opinion that it was, as I find in stallions it is dangerous to use either *eserine*, *pilocarpine*, or *barium chloride*, for just as sure as you do you will leave yourself liable to produce this accident. The first case I used it on it caused

strangulation and death, and when there is no flatus it should never be used, as it is liable to cause rupture of the stomach or bowels. This case showed no indication for the use of either of these drugs, as the horse was drawn in at the flanks and belly, showing no fermentation, but mild colicky pains, such as would be produced by the cornstalks, as it was something new for him.

PERSISTENT VOMITION AND ACUTE ABDOMINAL PAIN WITHOUT THE USUAL MANIFESTATIONS.

By HUGH THOMSON, V. S., Shabbona, Ill.

On the same night that I called to see Yataghan, my driving mare got sick there with colic. I gave injection of morphine and paid no more attention to her till I got ready to go home, about two hours after arriving. She was in a box-stall eating the bedding. I hitched her up and started home, driving slowly, reaching there at 11.30. Put her in box-stall, when she went to eating hay. I shut the stall door and sat and smoked for about half an hour, when I heard distressed breathing. I ran to the stall, opened the door, and found the animal on her feet, eyes bulging out of their sockets, breathing hard; then vomited about half a pail of food and water. I called the man up in the barn; he held up the lantern and I tapped her, she vomited while the canula was in her, she coughed and choked for over half an hour, and the breathing remained distressed. I gave eserine, grs.ii; strychnine, gr. $\frac{1}{2}$, while the canula was in place; also gave injection of glycerine, half a pint, per rectum; waited half an hour, when she had grown worse; vomited and choked several times. The trouble seemed to be in the stomach, as not much gas passed by the canula; gave her sodium salicylate, $\bar{3}$ i, in water, and shortly after ammonia carbonate, one-ounce capsule full. The eserine showed no action, so I gave about six grains of pilocarpine by the trachea; also another injection of glycerine. During all this sickness the animal never laid down, but would occasionally strike with her front feet and cough severely, when food and liquid would pass out of her nose and mouth. In just 10 minutes after giving the pilocarpine the saliva began to flow from the mouth; in about 5 minutes more flatus began to pass, also fæces, which continued for about one hour, and was so severe I gave some atropine and morphia, which stopped it. At just 4.30 I left and went to bed; looked at her about 8; she was quiet, but bloated; gave injection of salt and warm water, pail full, and colchicum, $\bar{3}$ i;

nux vomica, $\bar{3}$ i, belladonna, $\bar{3}$ i—all extracts. At 10.30 I called again and found her in pain, manifested by pawing; never laid down during the entire sickness, bloated badly, pulse intermittent and quick. Gave nitroglycerine and strychnine hypodermically. Went to the office, got barium chloride, $\bar{3}$ i; simple syrup, $\bar{3}$ ii; aquæ, $\bar{3}$ ii, and gave it by the mouth with a syringe; also gave injection of glycerine. In about three minutes glycerine passed, causing flatus, which continued about fifteen minutes. In just twenty minutes she showed the effects of the barium chloride; no fæces passed, but flatus continued to pass for one and a half hours. She ate nothing for two days after, when she ate some oats, drank about two quarts of water, the first she had drank since her sickness. She is now feeling good, but looks as if she had been driven through a knot-hole.

I send you a report of this case, it being the second case in an experience of 20 years, when I had recovery where severe vomition took place and the first case that went through such severe sickness without rolling and tumbling continuously. They are both remarkable cases. She has now a terrible cough, due no doubt to the effects of the food vomited.

I sent you a paper last week on the death of Yataghan, and the sickness of my driving mare, and since I wrote you I have an addition to make to the case of the mare.

I fed her Sunday morning, 16th; noticed nothing wrong with her; went to the barn at 11.30 to feed her, intending to give her a little exercise after dinner. I threw her feed into the manger, which I noticed empty, but she did not offer to step up to eat. I looked at her, found her breathing heavily, flapping of the nostrils, and the sound of dropping water on a piece of iron; took her temperature, $103\frac{1}{2}^{\circ}$; respirations 60; pulse intermittent and 85, ears and legs cold. Upon auscultation heard harsh grating sound. I turned her into a box stall; she laid down on her right side, neck and head stretched out in a straight line; respirations very quick and distressed, suffering greatly; she laid this way quietly, but breathing hurriedly, about 10 minutes, till I got her on her feet. I diagnosed mechanical broncho-pneumonia; gave bellad. ext., $\bar{3}$ i; cannabis indica, $\bar{3}$ ii, to allay the irritation of the lungs from the food passing during vomition; gave $\bar{3}$ i capsule acetanilid, followed by bryonia ext., \mathbb{M} x, every half hour (great homœopathic remedy in distressed breathing with flapping of the nostrils). After she got the third dose she began to breathe easier; cough,

which was suppressed and painful, ceased by evening. Temperature normal, and ate two quarts of oats and a little damp hay. I gave the bryonia then every three hours till 11 o'clock and nothing else. Next morning she was anxious for her feed, which she ate (three quarts oats), drank some water, and has continued improving, and now has but an occasional cough, good appetite; temperature and pulse normal, also respirations.

I find one of the best remedies in lung troubles and some cases of chronic cough is bryonia. If you use it when indicated, and by studying standard authors on homœopathy, you cannot make a mistake. I also find this a great remedy in the human subject for neuralgic pains in either stomach or chest and pains in the ovaries of women.

APOMORPHIA AS AN EMETIC FOR DOGS.

By FRANCIS ABFLE, Quincy, Mass.

Was called by a medical doctor to a pup that had swallowed a large soapy sponge. I say large, for the piece was about $5 \times 3 \times 1 \frac{1}{2}$ inches. I advised a zinc sulphate emetic or mustard or soapsuds. The doctor, however, fed the dog gravy, dog bread, meat and potatoes, etc., to overload the stomach; then we gave mustard and water. While waiting on action he spoke of apomorphia as used in his practice. I knew of the drug, but not in a practical way; so urged him to try it. He accordingly injected $\frac{1}{10}$ gr. subcutaneously, and within one minute the dog was sick, retched and vomited. At the second expulsion the sponge came up just as easy as, I should imagine, salt pork would on a seasick man. I then and there decided that henceforth apomorphia would be my companion. I learned another lesson. That thick, viscid food had coated the sponge so that it would slip easily. Here was a pointer alone that might have made the difference between success and failure.

A BULL FRACTURES HIS HUMERUS WHILE COPULATING.

By C. E. BURCHSTED, M. D. V., Exeter, N. H.

September 30th was called to see a young bull, 15 months old, that had injured his leg in serving a cow. I found upon manipulation that there was a fracture of the body of the humerus, which happened as follows: He had not served for quite awhile, and became excited upon approach of cow, and in plunging forward to mount fell to one side, hanging by the nigh leg upon the back of the cow, when, the owner says, he heard a snap. He fell to the ground in a heap. Was this frac-

ture due to the weight of the animal, or in the moment of sexual excitement, from contraction of the muscles when in the act of mounting, or both? I do not offer this as an instructive article, but as an interesting fact.

FISH-HOOK IN DOG'S NOSE.

By FRANCIS ABELE, Quincy, Mass

Party drove up with dog following carriage. He was immediately caught and tied up. Subject, a large Newfoundland. Had a three-pointed fish-hook in nose, another in lip. Would not allow one to touch them, but seemed anxious to brush them off with his paw. Applied tape muzzle and attempted to remove. Barb held so firm in cartilage could not succeed. Dog became unruly. Applied ether; had to use forceps to remove, really tear out, from nose. One from lip easily removed. Dog never realized removal, happy to miss them when he came to.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By W. V. BIESER, D.V.S., New York City.

THE ARSENICAL TREATMENT OF OTITIS EXTERNA IN THE DOG AND THE SO-CALLED CAUTERIZATION OF THE AUDITORY CANAL [*Hoffman*].—One of the diseases that often fails to respond to medication is chronic otitis externa, a disease whose chief symptom is the presence of a copious brown or grey, thin or thick, very putrid-smelling aural discharge; pressure elicits peculiar noises from the depths of the ear. After having tried different remedies, also the so-called cauterization in vogue in Bulgaria, without success, H. recommends the arsenical treatment. A valuable dog suffering from the above symptoms received 3 gtts of Fowler's solution daily, with daily increase of dose up to 20 gtts and then a decrease of dose daily to 3 gtts were given, which can then be increased. With this were given one litre thinned milk daily, with white bread, once or twice a week. The success was remarkable, complete cure resulting. But H. insists that the above method must be strictly adhered to for at least six weeks before one can expect improvement. For the proper administration of the arsenic, he suggests the keeping of a daily chart. The Bulgarian method of cauterization alluded to was as follows: A fine linen cloth is dipped in

melted wax and rolled into a funnel before the wax has time to cool. After cooling this funnel is deeply inserted into the ear and set afire at the upper free edge. As soon as the funnel has burned down to the ear itself the fire is put out and the stump of the funnel remaining in the ear is withdrawn, when it is found that the lower end of the improvised funnel is filled with white more or less dried powder composed of the aural secretions, which were changed into powder by the heat and drawn into the funnel's point by suction induced by the burning of the funnel.—(*Berl. Thierärzt. Woch.*)

TETANUS CURED BY INTRATRACHEAL INJECTION OF CARBOLIC ACID [*Von C.*].—B. getting good results from the subcutaneous injection of carbolic acid in human beings suffering from tetanus, C. used it for the same purpose in two mules with the following results: The mules three times a day received intratracheal injections of 3 gr. of carbolic acid crystals in 10 gr. of pure glycerin. In four days the temperature fell from 40.6° to 39.4°, the trismus subsided and the mules began to eat. After eight days the mules refused to allow any further intratracheal medication, so a bolus of 8 gr. of carbolic acid was given internally twice a day. Complete cure resulted in one case in 20 days, in the other in 30 days. [Whether the carbolic acid cured these cases is a mooted question, inasmuch as spontaneous cures have resulted in chronic cases of this kind.]—(*Berl. Thierärzt. Woch.*)

ECZEMA RUBRUM IN A DOG [*Von. E.*].—In treating eczema rubrum in dogs the author on different occasions noticed that a change in diet exercised a beneficial influence upon the course of the disease. In three such dogs that had received different kinds of medication without success a change from a vegetable to an animal diet caused a disappearance of the eczema in fourteen days. These particular dogs had never received animal food before. The author must not be construed to believe that abstinence from animal diet caused the eczema, but he is of the firm belief that a change in diet (from vegetable to animal and eventually from animal to vegetable again) is of decided benefit in the cure of this disease.—(*Berl. Thierärzt. Woch.*)

LACTOPHENIN [*Metzger*].—In M.'s experience lactophenin deserves special notice. It is a powder only soluble in 55 parts of boiling water and in 10 parts of alcohol, externally used in human practice. In veterinary practice M. has only discovered one report upon its use, viz., by Cadéac (Lyon), who declares it

to be an excellent febrifuge in that its effects last longer than other drugs of like character and without disagreeable results. In dogs M. gives 0.25—1 gr.; larger doses of 1—3 gr. used in a spitz dog caused outside of sleepiness no untoward results. In four other dogs (distemper) it had good influence generally and reduced the temperature 2° , sleep occurring quickly; no vomiting; it was well borne. The further course of the illness was so favorable that M. ascribes the results to lactophenin. In a horse that had two days previously received 20 gr. of antifebrin without reducing the temperature below $40\frac{1}{2}^{\circ}$, 15 gr. of lactophenin brought it down from 41 to 40 and the next day 20 gr. more brought it down 2° in three hours. Its place as an antipyretic is assured.—(*Berl. Thierärzt. Woch.*)

CROUPOUS ENTERITIS IN A DOG.—A dog that had never showed any previous ailments suddenly lost all appetite. He was given a dose of castor oil and died shortly thereafter. On autopsy it was found that a pseudo-membrane 2 mm. in thickness, and of a greyish color, was present, extending from the duodenum to the large colon; severe hyperæmia of the intestinal walls was present; with the exception of some diarrhœa the intestinal canal and stomach were empty.—(*Berl. Thierärzt. Woch.*)

PERSISTENCE OF THE UMBILICAL VEIN.—Upon killing an eleven-year-old cow a cord 50 c. m. long was noticed running from the umbilical ring to the liver; this strand had a lumen, thick wall and was of the appearance and color of the veins of the umbilical cord. It gave one the impression of a blood-vessel of uniform calibre covered externally by a connective tissue layer. 5 c. m. from its entrance into the liver the lumen of the strand became enlarged by reason of the wall of the strand becoming thinner. The strand was evidently a persistent umbilical vein.—(*Berl. Thierärzt. Woch.*)

ITALIAN REVIEW.

RECORDED CLINICS OF PROF. LANZILLOTTI-BUONSANTI, IN
"THE CLINICA VETERINARIA."

FISTULÆ OF BOTH TESTICULAR REGIONS.—A five-year-old gelding, used for military purposes, was observed by his rider with pus in the inguinal regions—pus which was oozing from two fistulous tracts in the scrotum, by the cicatrices of castration. These tracts measured five and seven centimetres long; the spermatic cord was not much swollen. Rather

than have recourse to any mild form of treatment, it was decided to perform an operation which the professor had already tried, and which, in these days of aseptic and antiseptic measures, could be given good results. The animal being thrown and placed on his back as for castration, disinfection of the region being thoroughly accomplished, the operation was performed on the left side first. The fistulous tract was enlarged, the spermatic cord severed and drawn out by an assistant, and by careful dissection was isolated from the fistulous structure. A double ligature of aseptic silk was applied on the cord high up, as near the ring as possible, and the part below them was amputated. The cavity left was curetted, and the skin closed by sutures, except for the passage of a drainage tube. The right side was operated upon in the same way. For both, in fact, the interference was similar to that often used in cases of scirrhous cord. The dressings consisted in large irrigations and washings through the drainage tube of a solution of sublimate, 1 per cent. Operated upon on November 23, the tubes were removed on the 27th, and on December 7th the animal was discharged. The cicatrization by first intention had taken place in almost the entire extent of the wound.

ENORMOUS SWELLING OF THE GREAT SESAMOID SHEATH OF THE LEFT HIND LEG.—This unusually interesting case is that of an aged horse which presented on the fetlock of his left hind leg at the location of windgalls an enlargement as big as a man's head, occupying the external and posterior part of the fetlock, extending a little on the inside and running upwards to the lower half of the cannon, where it gradually diminished. The horse was very lame even in walking. Satisfied that no form of treatment, ignipuncture or any other cauterization, could be beneficial, as a last resort extirpation of the tumor was decided upon. The animal was cast and by two incisions, one vertical and one horizontal, the growth was carefully exposed, dissected and removed, without accident, except a small opening of the synovial bursa of the superficial flexor of the phalanges, which was closed by catgut ligatures. Drainage tubes were placed on the upper and lower parts of the wound, which was closed by strong sutures with silk of Firenza, and a treatment established of large irrigations of solutions of corrosive sublimate. After the operation the fetlock had assumed its normal proportions and the animal standing well on his leg. After a few days, to control the motions of the articulation, a light bandage of sterilized gauze was applied. The case progressed

very favorably for nine days, when one morning, as the dressing was about to be changed, the horse, by a sudden move, tore with his front foot all the sutures of the hind leg. The wound was at once disinfected, the protruding granulations curetted, and a new dressing applied with all required antiseptic measures. Some ten or twelve days after the cicatrization was complete. At that time, however, the fetlock began to swell again, and blistering and firing failed to give any relief. An abundant hæmorrhage took place from one of the points of cauterization and on the following day the horse died, with lesions of septicæmia.

LARGE SCLEROTIC GROWTH OF THE RIGHT HIND PASTER, WITH PARTIAL OSSIFICATION AND PERIOSTITIS OF THE PHALANGES.—After a bruise of the right hind coronet, followed by a swelling which resisted blistering and firing, a two-year-and-a-half-old colt presented on that region a tumor as big as a child's head, and occupying the anterior and two lateral faces of the fetlock, and of the pasterns. The locomotion was much interfered with. The diagnosis of sclerosis of the connective tissue was made and extirpation by dissection decided upon. The colt was cast, the region shaved and thoroughly disinfected and the tumor exposed by first making two vertical semilunar incisions, by which an elliptic piece of skin was removed. The dissection of the skin was easy towards the outside part of the tumor, but when working towards the anterior portion it was found necessary in order to expose the growth entirely to make another incision horizontally. This done, the tumor was carefully removed, and small bony projections were excised with the bone forceps. The tendon of the anterior extensor and its bursa were found and left intact. To prevent the gathering of pus and permit of a better adaptation of the edges of the wounds, a third incision had to be made from the internal end of the horizontal one to the middle of the pastern. The wounds were closed antiseptically and drainage tubes put in place, the after treatment consisting in irrigations of sublimate solution with applications of iodoform and alcoholic solution of resorcine. The result was incomplete, as the cicatrization of the horizontal incision remained imperfect; that of the external wound was complicated with sloughing of the skin; that of the inner side only healed properly. The growth was made of tense, very hard, fibrous tissue with few points of ossification.

SPRINGHALT OF THE LEFT HIND LEG—DOUBLE TENOT-

OMY OF THE LATERAL EXTENSOR OF THE PHALANGES.—This mare had already been operated upon for springhalt by tenotomy of the lateral extensor of the phalanges and made a complete recovery. That operation had been performed in March, 1896, but during the following December the symptoms had returned. A second interference was decided upon, and the mare was operated upon in January, 1897. The parts being well disinfected, an incision 3 centimetres long was made, and the tendon exposed near its point of union with that of the anterior flexor. The section was made with the tenotome and the wound closed with stitches. The results of the operation were immediate, the springhalt disappeared and did not return. Unfortunately the mare took pneumonia a few days after and died.

LUXATION OF THE FEMUR IN A MARE [*By Dr. Cesare Soro*].—The author was called in consultation to see a mare, lame on three legs, from an injury of the left hind leg. That extremity was exceedingly stiff; there was no flexion possible of any of the joints; the anterior face of the wall of the foot rested on the ground. Every part of the leg seemed normal except the coxo-femoral joint, which presented only a slight swelling, which was somewhat warm and painful. Rectal examination proved negative. Locomotion was impossible, and when the animal was urged to move, she was ready to fall, whether from pain or from inability to displace her rigid leg. Suspecting a luxation, immediate reduction was advised, before any serious periarticular inflammation took place. The mare was cast on her right side, and a rope placed on the left leg to secure it as in castration, though on account of its rigidity great care had to be taken for fear of sudden and disastrous complications. The author then having applied some lashes of the whip to the mare, she struggled somewhat and suddenly the leg resumed its flexibility, and the luxation was reduced. A blister applied over the coxo-femoral joint completed the recovery.—(*Clinica Veterinaria*).

THE BUREAU OF ANIMAL INDUSTRY is to make the important innovation of issuing annually instead of biennially the report of its investigations into the diseases of live stock. This is certainly a valuable step, as new facts are developing so rapidly under its scientific researches that progressive American farmers and stockmen cannot stand for such antiquated methods in this important matter.

THERAPEUTIC NOTES.

NAPHTHALENE IN MANGE.—One or at the most two frictions of the ointment of naphthalene, 1 part, and lanoline, 9 parts, are a sure cure for mange. This ointment might also take the place of all mercurial preparations now in use. Care must be taken to use the naphthalene pulverized very fine.—(*Pharm. Zeit.*)

TREATMENT OF TAPEWORMS BY SALICYLIC ACID.—The following is recommended in human medicine and has proved successful in 19 cases out of 20. It might do well in canine practice. The patient has no supper and in the evening receives a dose of castor oil (30 grammes). The next morning another half dose of oil (15 grammes) is given; then an hour later 1 gramme of salicylic acid repeated every hour for the next 3 hours. If after the fourth dose, the tapeworm is not expelled, another half dose of castor oil (15 grammes) is taken.—(*Belg. Med. from R. M. V.*)

INFECTIOUS CONJUNCTIVITIS.—Two or three instillations by day, after washing with a solution of chloride of sodium at 7 per cent., are recommended for infectious conjunctivitis. *R* Blue of toluidine, 1 gramme; boiled water, 1 litre.—(*R. M. V.*)

AGAINST ITCHING DERMATOSIS.—One of the two following prescriptions is recommended against the troublesome itching frequently observed in some cutaneous diseases, specially in eczema: *R* Menthol, 10–15 parts; collodion, 100 parts, or *R* Menthol, $\frac{1}{2}$ to 1 part; olive oil, 1 part; lanoline, 50 parts. After a thorough antiseptic wash made morning and evening, the diseased parts are well dried and a thin coat of the preparation of menthol laid over.—(*R. M. V.*)

RESOLUTIONS OF NEW YORK STATE V. M. SOCIETY,

ADOPTED AT ITS EIGHTH ANNUAL MEETING IN NEW YORK CITY, SEPT. 14–15, 1898.

WHEREAS, The Tuberculosis Commission of the State of New York, intrusted with the control of tuberculosis and glanders in animals, only, is composed of two physicians unacquainted with the diseases of the lower animals.

WHEREAS, This Commission draws in yearly salaries six thousand dollars in addition to office and other expenses for the performance of services which they are incompetent to perform and do not render.

WHEREAS, There is no systematic work done by them in the suppression of tuberculosis in farm animals, but cattle brought

from the west for shipment into the States east and south of New York and here tested by tuberculin are habitually separated into two lots representing the sound and tuberculous, and that the sound are shipped into the New England and other States, while the tuberculous are sold into the herds of the State of New York, carrying destructive disease into our herds and a most dangerous infection into our meat and dairy products ; therefore, be it

Resolved, That the New York State Veterinary Medical Society protests against such misappropriation of public funds ; against this false show of protection to our herds and to the public health, while both are being sacrificed by the introduction into our barns and fields of the cattle of other States which have been rejected by other markets as tuberculous ; and be it further

Resolved, That this Society respectfully represents to the Legislature of the State of New York, that in order to secure the best results in dealing with contagious diseases of the lower animals the work should be entrusted not to physicians who know the diseases of man only, but to accomplished graduates of the best veterinary schools who have made a special study of the many varied maladies of farm animals and of the sanitary measures necessary to their restriction and extinction. The fact that the Legislature has placed so high a value upon veterinary medical practice as to enact a stringent law for its regulation and that a series of acts have been passed with the view of fostering veterinary education and elevating its standard, logically demands that the owners of live stock in New York should receive the benefit of the sanitary science which is the avowed object of such improvement and control.

WHEREAS, It appears that the Commissioner of Agriculture of the State of New York, has under successive administrations employed as chief inspector of contagious diseases, a person who is not a graduate of a veterinary or medical school, and who has never attended such a school, thus violating the spirit, if not the letter of the law, discrediting scientific veterinary medicine, and depriving the stock-owners of the State of the sound sanitary administration which is their right by law ; be it

Resolved, That the New York State Veterinary Medical Society at their meeting in New York, September 15th, 1898, protests emphatically against this misappropriation of public funds, and the withholding from the service of the owner of live stock of that knowledge and skill in veterinary sanitary

science which the Legislature has endorsed, not only by the statutes regulating veterinary-sanitary work, but also by special legislation directed to the improvement and elevation of veterinary education and practice in the State.

WHEREAS, it appears that at the Farmers' Institutes conducted in the State of New York, one Doctor Smead has for several years been employed at State expense to instruct farmers on the subject of tuberculosis in farm animals; and

WHEREAS, The said Doctor Smead has on such occasions systematically done violence to the well-established bacteriological doctrines of the disease and sought to poison the mind of the agricultural community by antagonizing all sound legal measures for the extinction of said disease, or the restriction of its prevalence; therefore, be it

Resolved, That this meeting of the New York State Veterinary Medical Society hereby denounces and condemns the action of the director of the Farmers' Institutes in this State in thus employing public funds in the subornation of sanitary knowledge and work, and in contributing to the maintenance and extension of that contagious disease which is very widely spread among the animals who furnish our meat products and which causes a larger mortality in the human race than any other disorder.

Resolved, That this Society shall express and hereby expresses its grateful thanks to the County Veterinary Medical Society for the courteous reception which they have tendered us, and for the handsome entertainment furnished in the illuminated trip on the trolley car, the luxurious banquet and the many and varied means of enjoyment at the suburban seaside resort.

CORRESPONDENCE.

THE IDIOSYNCRACIES OF THE TUBERCULIN TEST.

BROOKLYN, N. Y., Oct. 17, 1898.

Editors American Veterinary Review:

DEAR SIRS:—I enclose you the following copy of a letter addressed by me to Assistant Sanitary Inspector Black, of this borough, in reference to a matter which is clearly demonstrated in the communication. I would be much pleased to have you express your opinion as to whether I was or was not justified in failing to condemn the animals as tuberculous by the reactions obtained.

Very truly yours,

W. H. PENDRY.

BROOKLYN, N. Y., October 11, 1898.

Hon. R. A. Black, M. D., Assistant Sanitary Inspector, Borough of Brooklyn, N. Y.:

DEAR SIR:—I feel I am in duty bound to call your attention in the matter of the three cows taken from the stable of Joseph Spanier, Rochester Avenue, near East New York Avenue, Brooklyn, on the 4th instant, and destroyed at the offal dock, Newtown Creek, the same day.

These three cows were subjected to a tuberculin test by me on September 3d, using one-half c. c. of the tuberculin as procured from the Department of Health, New York. The following is an extract from my book used at the time of the three cows in question:

Temperature taken at proper intervals during the day previous to inoculation.—Dark red cow, horns, B. of H. tag 3653: 104° , $102\frac{2}{5}^{\circ}$, 104° . Blue cow, white face, B. of H. tag 3663: $102\frac{3}{5}^{\circ}$, $102\frac{4}{5}^{\circ}$, $103\frac{4}{5}^{\circ}$. Red cow, white star, dehorned, B. of H. tag 3664: $103\frac{3}{5}^{\circ}$, $103\frac{4}{5}^{\circ}$, $105\frac{3}{5}^{\circ}$.

Temperature taken at proper intervals during the day after inoculation.—Tag No. 3653: 102° , $103\frac{2}{5}^{\circ}$, $104\frac{3}{5}^{\circ}$. Tag No. 3663: $101\frac{4}{5}^{\circ}$, 102° , 102° . Tag No. 3664: $103\frac{2}{5}^{\circ}$, 103° , 106° .

It will readily be seen that in neither case was there a reaction that could fairly be attributed to the test that would warrant me in condemning the cows; that while in numbers 3653 and 3664 the temperatures were too high during the day previous to the inoculation and could reasonably be attributed to the hot weather, which might possibly interfere in getting a satisfactory result of the test, it will as readily be seen that in the case of the blue cow—tag 3663—there was every reason to be satisfied with the result. On hearing that your Department had condemned them and looking over the result of my work I suggested on the part of the owner that they should be isolated and submitted to a joint re-test, but this fair offer was met with a threat to arrest anyone who might interfere with their removal. There was no desire for a moment on the part of any one to interfere with any official in the discharge of his duty, but I felt that I owed a duty to those who had engaged my services in looking after their interests. I showed your inspectors my record of the test as made by me, and particularly drew their attention to cow with B. of H. tag 3663.

I represented the owners at the post-mortem, and, while I am free to admit that the two red cows showed evidence in a mild form of tuberculosis, the other cow exhibited no evidence what-

ever, all the organs being perfectly normal, except that a portion of the udder showed a somewhat hardened condition, which could not be attributed to tuberculosis. You will find a report of the post-mortems to bear this out. Had this cow been killed at the slaughter house no meat inspector could have found the slightest excuse for cutting her down.

In conclusion I would say that the other two cows showed that my former protest of testing during the hot weather was well founded.

Yours truly,

W. H. PENDRY, D. V. S.

[We consider that cows tagged 3653 and 3664 were not proper subjects for the tuberculin test, as the maximum ratings (104 and 105 $\frac{3}{5}$) were too high to judge of a reaction. The animals should have been isolated and become the subjects of further observation. The fact that the post-mortems bore out the action of the Board of Health has no bearing upon the case; the object of the test was to ascertain the degree of reaction only, and as a tuberculin test the figures do not bear out a justification of condemnation. In the case of the cow tagged 3663 we hold that she is not shown to have reacted, and upon the ratings given should have been passed as non-tuberculous.—EDITOR.]

THE SILVER ANNIVERSARY OF THE A. V. C.

BROOKLYN, N. Y., Oct. 24, 1898.

Editors American Veterinary Review:

DEAR SIRs:—As the REVIEW reaches most of the members of the Alumni Association of the A. V. C., I desire through it to call their attention to the circular letter issued by the Secretary, Dr. Clayton, and to express the earnest hope that it will be received in the spirit in which it is sent, and more particularly that it will meet with the response that it certainly ought. I am just in receipt of a letter from Dr. Liautard, dated Paris, September 30th, in which he expresses the very earnest wish that all members of the Alumni Association will unite in making our Alma Mater's Silver Anniversary a just and worthy tribute of the love we bear her. Surely there are none who will treat with silence such an appeal. It should bring the blush of embarrassment to any one who would so far forget the day that his Alma Mater gave him that which none can take away—an opportunity to place himself in the ranks of an honored profession. Not one should be missing from the scroll of the loving

cup, to be an everlasting tribute of gratitude and affection to the father of the veterinary profession in America.

Dr. Liautard assures me in his letter that he will be here to participate in the celebration of the Silver Anniversary of old A. V. C. How long he will be with us we do not know, and we should accept the opportunity of showing our appreciation of him who has labored so long and so well for our profession.

W. H. PENDRY, D. V. S.,
President Alumni Association, A. V. C.

OBITUARY.

WILLIAM MACHAN, V.S.—Through a most distressing accident this popular veterinarian lost his life on October 11, at his home, 358 West Forty-eighth Street, New York City. On the 5th, while administering an injection to a horse the animal dropped dead, falling upon the doctor and crushing his skull. He lingered until the morning of the 11th, when he died of meningitis. He graduated from the Ontario Veterinary College in 1884, and was a member and regular attendant upon the meetings of the New York State and New York County Veterinary Medical Associations, and though of a retiring disposition, he always took a deep interest in the proceedings, and was ever ready to undertake anything which would be to the advantage of his profession. By his genial disposition he had endeared himself to his fellow-members, who will read the news of his untimely demise with sincere regret.

At the late meeting of the New York State Society the writer sat opposite Dr. Machan and admired his splendid and powerful physique, the picture of robust manhood. To record now his abrupt taking-off emphasizes very forcibly the truth of the proverb that "in the midst of life we are in death."

R. R. B.

FREDERICK WILLIAM TURNER, Ph.G., D.V.S.—This well-known veterinarian died at his home, 91 Lawrence Street, New York City, the latter part of September. He graduated from the A. V. C. in 1890, and had practiced in New York City ever since. He formerly lived in Hackensack, N. J., and had been a member of the U. S. V. M. A. and the New York County V. M. Association.

LEWIS M. BIGNELL, D.V.S.—At Woodstown, N. J., in September, Dr. Bignell died after a long illness. He graduated from the A. V. C. in 1886 and located in Philadelphia, after-

wards removing to Woodstown, where he had built up a very lucrative practice.

A. L. HUNTER, V.S., of Watkins, N. Y., graduate Ontario Veterinary College, 1885, died of pyæmia on August 15. He was a member of the State Society, an active practitioner, and prominent in politics.

SOCIETY MEETINGS.

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular meeting of this association was held at the Elmwood House, Waterville, Oct. 13, at 7.30 P. M., President West in the chair.

Present: Drs. West, Stevens, Joly, Purcell, Freeman, Russell, and Salley.

The minutes of the previous meeting were read and accepted.

The matter of the passage of a veterinary registration bill was discussed. It was decided to make a strong effort to have a bill passed this winter.

On motion of Dr. Stevens, seconded by Dr. Purcell, it was voted to instruct the Secretary to send a circular letter to the quacks practicing in the State, together with a copy of the proposed bill. It is believed that if the quacks understand the nature of the bill they will aid instead of opposing its passage.

Dr. Stevens read a paper upon "Puerperal Septicæmia,"* which brought forth a spirited discussion.

Voted to adjourn to meet at Augusta in January.

I. L. SALLEY, D. V. S., *Secretary*.

NORTH CAROLINA V. M. ASSOCIATION.

This association met in Wilmington, N. C., July 30, 1898.

President C. R. Ellis delivered a very encouraging address, urging the members to aid in having our bill and proper sanitary regulations passed at our next legislature. A petition was presented to the association by the Secretary with the signatures of all the best M.D.'s in North Carolina asking our legislature to enforce strict inspection of animal foods and we feel sure of winning with such co-operation.

Drs. P. H. Morris, Elizabeth City; H. G. Lambert, Asheville, and J. M. Peden, Winston, were elected members and certificates presented.

* Will be published in an early issue.

A vote of thanks was given the Hibernian Benevolent Society for the use of their hall.

Adjourned to meet in December, place of meeting left with the Secretary.

J. W. PETTY, *Sec. and Treas.*

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order at 8.45 P. M., Wednesday, October 5th, in room 37, New York Academy of Medicine, by President Robertson. The roll-call met with few responses, owing to the very uncertain condition of the weather in the evening, and many of the members having been exposed to the same condition of the elements during the afternoon. The following, however, were present: Drs. Robertson, Hanson, Gill, MacKellar and Ellis.

The minutes of the June meeting were called for by the President, and were read and approved. There were no committee reports ready, so the President passed to the next order of business, and called for papers. No essayist having been appointed for this meeting, President Robertson took the initiative in "case reports" by describing a very interesting case of "keraphyllocele" with which he had been dealing. A very interesting little discussion followed, and finally drifted into a general discussion on general topics. Under the head of "new business" the question of the U. S. V. M. A. coming to this city was brought up, but President Robertson thought it better to delay its discussion until a fuller meeting.

At ten o'clock it was regularly moved and seconded that the meeting adjourn, which was carried by vote.

ROBERT W. ELLIS, D. V. S., *Secretary.*

CHICAGO VETERINARY SOCIETY.

At the third annual meeting of the Chicago Veterinary Society, held October 13, 1898, the following officers were elected: President, James Robertson; First Vice-President, Joseph Hughes; Second Vice-President, L. A. Merillat; Third Vice-President, J. F. Ryan; Secretary, Jos. B. Clancy; Treasurer, J. G. Fish.

JOS. B. CLANCY, *Secretary.*

THE MASSACHUSETTS VETERINARY ASSOCIATION.

The October meeting of this association was held at the Boston Veterinary Hospital, corner Albany and East Dedham Streets, Boston, Wednesday evening, October 26, at 7.30.

Demonstrations in casting and controlling were announced to be given by Drs. G. P. Penniman, of Worcester; W. M. Simpson, of Malden; A. G. Walker, of Taunton; J. F. Winchester, of Lawrence. Also a new method of anæsthesia by Dr. John M. Parker, of Haverhill.

NEWS AND ITEMS.

DR. C. H. PEABODY, Charlton City, Mass., reports a case of rabies in a dog caused by the bite of a skunk.

JACOB G. PFERSICK, D.V.S. (McGill, '98), of Shellburne Falls, Mass., was married on Oct. 11 to Miss Helen May Foster, of the same place.

THERE is only one graduate veterinarian in the city of Richmond, Va., a progressive southern city of 100,000 population. Dr. Thomas M. Sweeney is the lonely but fortunate possessor of that distinction.

TWO POPULAR RUBBER PADS are those made by Hallanan (the "Star" and the "Columbia") and by Mooney (the pad with the "sanitary opening"). They are both advertised in the REVIEW, and are worthy the confidence of veterinarians.

THE ONTARIO VETERINARY COLLEGE opened its session on Wednesday, Oct. 12, with an inauguratory address by Principal Smith. We are informed that the attendance is large, coming from the United States, Dominion of Canada, the British Isles, and the West Indies.

GEORGE H. METCALFE, a veterinary surgeon of Syracuse, N. Y., committed suicide by shooting himself through the heart on October 19, in the livery stable of Peter Hopkins, in North State Street. Ill health is given as the cause. He was 26 years old, and had studied under Dr. Henderson, of Syracuse.

DR. LOWE'S HOSPITAL EXTENSION.—From the plans for the addition to the Paterson Veterinary Hospital, what was a very nice infirmary will be converted into a very grand one, 50 x 125 feet, two stories and built of brick. The internal arrangements will be modern in every particular, and the facilities in keeping with the liberal patronage bestowed upon its energetic owner.

DR. GEORGE H. BAILEY, State Veterinarian of Maine, throws a broadside into Secretary Batchelder, of the New Hampshire Board of Agriculture, in the *Maine Farmer*, of October

20, in reply to his derogatory criticism of the value of tuberculin. We published in a recent issue the action of that Board in returning the condemned cattle to the Shedd herd, and this controversy has grown out of that action.

DR. JOHN G. SLEE, until the breaking out of the Hispano-American War veterinary inspector under the Bureau of Animal Industry at the Brighton Abattoir, Boston, is now veterinarian to the Second U. S. Volunteer Cavalry, Seventh Army Corps, stationed at Panama, Florida, from which point he expects to be ordered to Cuba at any moment. Dr. R. W. Grutzman, of Jacksonville, Florida, occupies a similar position in the Second Division of the same corps. Both are recent graduates of the A. V. C.

DRS. W. L. BAKER, of Cortland, N. Y., and H. R. Rider, of Deposit, N. Y., have formed a partnership and leased the veterinary hospital of Dr. Nelson P. Hinkley of Buffalo—the premises having recently been occupied by Drs. Willyoung and Gangloff, who have dissolved partnership and engaged in practice upon their individual accounts. Dr. Baker is President of the New York State Veterinary Medical Society, and Dr. Rider graduated from the New York State College at its last examinations. We wish them every success in their new field.

HORSE SHOW EXHIBITORS' ASSOCIATION.—At the recent Newport Horse Show considerable talk was indulged in by the horsemen present with reference to organizing a horse-show exhibitors' association in the East, and such a society will probably be incorporated during the meeting of the National Horse Show in New York. Among its objects it will have for its aim the outlining of standard horse-show rules and regulations and co-operation with the management of horse shows in the selection of judges and in other particulars where suggestions of exhibitors would be helpful.

SUIT FOR DAMAGES.—John F. Gibson, a New York horse dealer, having written to a gentleman who had refused to consummate the purchase of a horse because Veterinarian E. B. Ackerman, of Brooklyn, had condemned him as being unsound, and saying that the horse did not pass for the reason that he could not afford to give the "tip" which the doctor required, the latter has retained counsel, who are bringing suit for \$10,000 damages. The attorneys say it is one of the best and clearest cases they have ever been retained in, and expect to get a substantial verdict for their client. If the dealer is proven

guilty it will be a salutary lesson to others and a great benefit to veterinarians.

HOG CHOLERA ANTITOXIN.—The Bureau of Animal Industry is firm in its faith in the curative and protective power of its antitoxic serum in hog cholera. The use of this serum in infected herds is said to have saved 80 per cent. during the past calendar year, and we are informed that in the last few months the methods of its preparation and use have been considerably improved, so that a higher degree of efficiency is hoped for. It is believed that a practical method of preventing the greater part of loss from swine plague has been finally worked out, although the Bureau awaits the results of the experiments planned for this year before claiming absolute assurance in the matter.—(*Breeder's Gazette.*)

DR. LYMAN MISTAKEN.—In the opening address of Prof. Charles P. Lyman before the students of the Veterinary Department of Harvard University on Oct. 3, occurs the following paragraph, as reported in the *Boston Globe*: "Prof. Lyman's subject was 'A History of Veterinary Medicine.' He said that the Egyptians practiced veterinary surgery in very remote times, but that modern medicine dated from Hippocrates, both for mankind and animals. In the United States there were few schools before 1857. In that year there was established the N. Y. C. V. S. Out of this grew the American Veterinary College, which did not at first admit students. Then came the new school, founded by Harvard University, which gave students a term of three years of nine months each. The University of Pennsylvania and Cornell soon established schools modeled after that of Harvard." What the learned director of Harvard could have meant when he said the American "did not at first admit students" is hard to conceive, as all contemporaneous veterinarians know that it entered into active teaching upon its inauguration, with quite a number of matriculants.

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AMERICAN VETERINARY REVIEW.

DECEMBER, 1898.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLES.

THE HACKNEY HORSE.—At this time when the hackney seems to be the fashionable horse in the United States, the true origin of the name may be of some value to those of our readers who are interested in zoötechny.

The name *hackney* is of French origin. In times gone by, some horses used for some special purpose were known in France as *haquet*, *haquenée*, the latter being a lady's saddle horse and corresponding to what was called in England the *nag*, *pad*, or lady's horse; and when the Normans came to England they applied the name of their own French *haquenée* to the *nag* or *pad*; one became synonymous of the other.

But what is considered a perfect hackney to-day is far from the original *haquenée* or *nag*; crossing and improvements in breeding have changed the character of his predecessors, of his godfather, and if we can believe the description that Prof. A. Reul gives in the *Annales de Belgique*, the true hackney of to-day possesses very little of the character of the French *haquenée* or of the true English *nag*. Indeed, according to Prof. Reul, the following is the character of a perfect hackney:

“Not of large size, those of 15 hands high are not rare; its head must be small, short, well carried, with kind and energetic features; the forehead wide, the face rather narrow, but in proportion to the size of the nasal cavities; the eye large, the ear short and active; the neck of average length, with well developed muscles, high above and slightly arching. The back straight, well muscled, especially to the loins and croup. The withers high, clean and bony; shoulder long and in good

direction ; the arm and leg of good length in proportion with the canon bones, the muscles of the thigh and croup well developed. All the articulations must be wide, well developed and supple in proportion with their resisting power to the violent efforts they must support."

In conclusion of this description, Prof. Reul says :

"Whatever may be the anatomical beauty of a hackney, its great value remains in the brilliancy of its gait ; he must know how to handle his legs (*lever la patte*) and carry them in all their extension ; he must, so to speak, trot in the air ; his most curious aptitude is to go faster trotting than galloping. He has two excellent gaits, walking and trotting ; galloping is hard to him, and he only takes it under pressure, and when he has lost control of himself."

* * *

THE USE OF ARECOLINE IN ACUTE LAMINITIS.—The many serious sequelæ that are so common after an attack of laminitis, the fact that in many instances they disable horses, and not uncommonly render them useless, have often justified the serious prognosis that has to be given when a veterinarian is called to attend an animal suffering with disease of one, two or four extremities ; and if one looks over the therapeutics recommended to control the inflammation, to prevent the complications, the deformities that may follow ; if he is embarrassed, it is not for the want of forms of treatment, but in the selection of the one which would be likely to bring him the best results, and that in the shortest time possible. For many it is the old general depletive treatment, for others the strong cathartics ; for this one the diuretics, for that one the diaphoretics ; one will ignore local treatment, another will direct his attention to the feet almost exclusively ; and with any, no matter how carefully the treatment is applied, complications are not impossible. Even with the simple form which we believe is altogether of American birth, that of the administration of large doses of nitrate of potassium, serious accidents have occurred.

The important fact in the result of the treatment is to subdue the inflammatory process at the earliest date, to control its effect, to hasten it rapidly and to avoid those modifications which have justified the divisions of the forms of the disease into acute, subacute (?) and chronic.

Although, according to Kauffmann, arecoline and its salts are powerful toxics, Fröhlner some time ago recommended the use of bromhydrate in the treatment of laminitis, and in ten cases of laminitis forward and two of the four feet, all had recovered in an average treatment of six days. Later on Paimans, of Holland, recorded two cases with even shorter duration of treatment. A Belgian veterinarian has recently given his experience in eight cases, with the following results: (1st case) Laminitis of both fore legs, sick for four days, resumed work after six days; (2d) Laminitis both fore, sick for one day, to work five after; (3d) Same trouble, same condition, resumed work in same length of time; (4th) Disease had existed for a few days, resumed work after eleven days of treatment; (5th) Recent laminitis forward, recovery in three days; (6th) Laminitis of four extremities, convalescent in a few days, to work in thirteen; (7th) Disease of both fore, cured in six days; (8th) Disease of both fore, complicated with lameness behind, laminitis had existed for several days, resumed work, cured of both diseases in fifteen days.

The administration of the bromhydrate was made subcutaneously, 5 or 10 centigrams of the salt dissolved in 5 grammes of distilled water, one injection a day; the quantity of salt injected varied according to size of animal, 5 for small, 10 for large.

The advantage obtained by those who have already had recourse to that treatment cannot be ignored; perhaps other experiments are necessary to confirm them, but from what has already been done this new treatment deserves the attention of veterinarians.

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ANTISEPTIC VETERINARY SURGERY.—It is no longer necessary to preach the value of antisepsy in the treatment of surgical diseases, and, though its thorough application demands special conditions which may be difficult to obtain in private practice, there are many conditions where even with imperfect application it has given results which would have been otherwise had not antiseptic measures been resorted to.

The application of antisepsy is considered in European veterinary schools as thoroughly, we would dare to say, as it is in cases of human surgery, and it has been recently our good fortune to see its application at the clinics of Alfort, in a case of foot disease, and of deep needle firing by Prof. Cadiot. But of all those who, so far, have recorded the results obtained in veterinary surgery by antisepsy and of its possibilities in almost any operation, there are probably none who have done as much as Prof. Lanzillotti-Buonsanti, of the Royal Veterinary School of Milan.

We have already presented to the readers of the REVIEW many incidents of the great clinic of Milan, whose records we have extracted from the *Clinica Veterinaria*, and our friends are already familiar with the results obtained. Lately Prof. Buonsanti has issued the results he has obtained in the treatment of that bug-bear affection, fistulous withers. It is true that following the rules laid out by many daring surgeons, viz., cutting freely down to the seat of the disease, removing all infiltrated structures, scraping and curetting until all possibility of new necrosis, collection of pus or reformation of fistulous tracts be removed—thus far old surgery went, but the new demands resort to the antiseptic washing, the application of drainage tubes to permit the escape of pus and the antiseptic irrigations, and by appropriate suturing and dressing it is possible to obtain cicatrization by first intention in from 20 to 26 days, or six weeks at the longest. Such are the results which old surgery but very seldom secured.

Antisepsy is certainly put into practise in large establishments, probably in private hospitals, but we fear that individual practitioners, careless of the interests of their employers—of their own, in fact, and of the results they would obtain, neglect to apply it, and thus lose the benefit they would gain by it.

A REAL VETERINARY ARMY SERVICE.

“Everything comes to those who wait,” is a somewhat distorted quotation of an axiom which has more often proven true

than false ; and if our faith in the old adage is to continue, order is almost certain to come out of the chaotic condition of army veterinary matters, for we have waited long for a glimmer of the light of a glorious fruition. The veterinarian who feels pride in the great estate to which the true profession has arrived in the few short years it has existed upon this side of the Atlantic, could not but be contented were it not for the thorn which keeps piercing his side whenever he reflects that this wise and progressive government is the last to place upon its brow the wreath of approval and support. No, not this great government, but just one department of it, for surely the Department of Agriculture has reaped grand results from its recognition of the value of veterinary services, just as the veterinary profession has profited by the patronizing graces of this branch of the government. But, the War Department has ever turned a deaf ear to the appeals of the profession, and been blind to its own necessities. Possibly much has been due to the need of reorganization of the army upon a broader, more liberal and up-to-date basis. Now, that a real, though short and more distinctly naval than military, war has opened the eyes of Americans to the inadequacy of its standing army, there is already an expressed intention of maintaining a force of a hundred thousand men, divided between infantry and cavalry. This will mean reorganization thorough and complete, and surely no real reform in this direction can be seriously considered which omits the establishment of a veterinary department. The time is then fast approaching when we are to take our proper place in the army just as we have occupied it in every other progressive nation of the world for years and years. In the present issue of the REVIEW this subject is very thoroughly gone over by one who is peculiarly competent to speak upon it, one who has labored along these lines for years, and who draws his conclusions, not from theoretical reasoning, but from long experience and intelligent observation, not only in the United States, but in some of the leading Continental armies. Prof. Olof Schwarzkopf writes upon a subject which has been with him a passion, and we re-

spect his conclusions as those of a man who has viewed the subject from every standpoint, and has weighed every condition of the scheme which he presents. He believes that, so far as any permanent good to the army and the profession goes, the bill which we have been for years urging upon Congress, is unworthy of us, and that it meets opposition largely through its own unworthiness. But, showing as he does the lack of professional supervision in army affairs to have resulted in great pecuniary loss to the country and needless suffering to the noblest of man's servants, his suggestions to create a department in the proposed reorganization which shall include more than the mere treatment of sick and disabled animals, thus establishing a great economic department, extending its intelligent supervision over all related interests, must command the interest and co-operative support of the War Department and the Congress.

The REVIEW believes that the time has come when united exertion upon a broad and liberal basis will bring to the profession honorable recognition and a dignified position in this important service, which will demonstrate to the country that the proper encouragement of this science in its practical application to the requirements of the War Department in peace and in war will yield the best results from every view point—efficiency to the service, economy to the treasury, humanity to the beast, and justice to a noble profession.

AS TO THE GOVERNOR OF ILLINOIS.

When a little over a year ago we denounced Governor Tanner for his ignorant assault upon the veterinary profession by his refusal to select one out of a dozen or more of her worthy members for the important position of State Veterinarian of the great commonwealth over whose destinies he had just been elected to preside for four long years, and the direct insult to them and the people of his State which he offered when he selected for that position a man totally unfit by education or training, we anticipated the character of the man who

could be guilty of such a barbarous and almost criminal act. His recent action in the case of the strikers has shown that our estimate of him was almost prophetic, and he is being lashed by the press of the country as he deserves. The only reason he was honored by election was that his opponent, Altgeld, was presumed to be more degenerate, but recent events have shown that he is even a worse enemy of law, order and society than his socialistic competitor. If impeachment does not remove him earlier, the veterinarians of Illinois may rest assured that when his term is over no more Governors of that class will ever again disgrace the State and retard scientific progress.

OUR E. C., the *Journal of Comparative Medicine, etc.*, appears to be in a distressingly perturbed state of mind wherever REVIEW collaborators are concerned. In its August issue it spat upon our valued co-worker, Prof. Williams, and in its rather tardy October number Dr. Schwarzkopf comes in for his share of its vituperation. What's the matter with the erstwhile appreciative *Journal*? which was once wont to applaud the original efforts of those of our profession who are doing a noble work in building up the literature of this new science in America. We trust that, for the good of the profession, it is not a case of editorial *ennui*, for we cannot afford to lose the enthusiastic support so unstintingly given by it for the past few years, during which period it has unceasingly declared that it "Leads Veterinary Journalism in America." The question uppermost is as to the direction, and this involves a further consideration as to whether we can afford to follow our generous leader.

OUR ESTEEMED CORRESPONDENT, Dr. Francis Abele, of Quincy, Mass., to whom the REVIEW and its readers are under great obligations for frequent and very interesting reports of cases occurring in his practice, contributes this month one in which he figures as hero and victim, and exhibits a degree of coolness in the face of real or fancied danger which may prove the best antidote to the development of poisonous germs in his

system. We believe from his recital of the incident, together with the postscript, that the precaution of preventive treatment should be at once adopted ; but trust in any event that nothing more serious than an exciting experience may result.

ORIGINAL ARTICLES.

PARTURIENT PARESIS.

(THE SO-CALLED CALVING-FEVER OR PARTURIENT APOPLEXY.)

STUDIES AND INVESTIGATIONS INTO ITS CAUSE AND HANDLING.

BY J. SCHMIDT, VETERINARIAN, KOLDING, DENMARK.

Translated for the American Veterinary Review, by W. L. WILLIAMS, New York State Veterinary College.

(Continued from page 530.)

No. 1. The first patient came under my care March 29, 1896. She was a well nourished, very good milk cow, above medium size, 8 years old. She had calved 24 hours before the development of the disease and came under my care a few hours after the beginning of the affection. She had given sufficient milk after calving ; after the outbreak of the disease she had been bled.

The cow could not rise, and lay most of the time with her head bent to her side ; the expression was somewhat listless although the patient was not wholly inattentive to her surroundings. The excrement in rectum was not hard, but covered with dark, dry crusts ; temperature 38° C.

The condition in general was that of a patient suffering from an attack of medium severity shortly after the beginning, so that under ordinary handling she would be expected to become worse.

The infusion apparatus was laid in lysol water, the udder emptied by milking, and the teats cleaned by washing with soap and water and disinfected with lysol water. Five grammes potassium iodide were then dissolved in .75 liters of freshly sterilized water, the solution cooled to 40° C. and injected into the udder through each teat successively. The column of air which existed in the tube, was pressed into the mammaræ along with the infusion, and several times during the injection the funnel became empty, through which at times more air was forced in. Then the udder was firmly kneaded with the hands, and partly through this, and partly by stroking from below upwards (massage) the solution, together with the included air, was made to penetrate as thoroughly as possible into all divisions of the milk ducts and into the lacteal acini. Milking the cow was forbidden. Internally an aloe powder was given. In addition

the cow was rubbed and covered with woolen blankets, and received clysters with the addition of common salt and oil every 2 to 3 hours. The handling occurred in the evening. It can be imagined that I awaited, with not a little interest news the next day regarding the course of the disease, 'as well as the outward effects of the treatment.

The cow had lain very quiet for some hours, had then lifted up her head and little by little assumed a more lively appearance. After 8 hours she was standing up and showed very fair appetite, yet the owner complained that 12 hours after the treatment the cow still gave no milk at all. At 16 hours, that is, 8 hours after convalescence, the milk secretion began again to show activity and when I inquired two days later regarding the milk flow and appearance of the cow, I was informed that the cow yielded abundant milk and that the milk had been quite normal throughout the interval.

This was indeed a hopeful beginning. That the cow recovered, to that I attached no weight, but that she became better moment after moment after the treatment, although in my judgment the case was taken in the progressive stage of the malady, that nevertheless she recovered in 8 hours, an unusually short time, and especially, *that the milk secretion could be reduced quite to zero*, these circumstances indicated strongly, that efficacy of treatment and an influence upon the course of the disease must have been attained; for all these conditions could not well be accidents. To this was added, that the infusion had not injured the udder and though the milk flow was somewhat smaller than usual during the first few days, yet this played only a subordinate rôle.

In the Danish Maanedsskrift for Dryläger, Vol. IX, 7th number, I have recorded fairly detailed clinical notes on 50 patients. Since however it is a laborious task to read all these in their entirety I will limit myself here to quoting therefrom only a few examples, some followed by favorable, others with unfavorable results, and especially some cases in which the handling was varied.

In Nos. 2 to 8 it was the plan to fill the infusion apparatus with the pot. iod. solution, before the milk catheter was inserted into the teat, and also in that the funnel was always partly filled during the infusion so that the injection of air into the udder would be avoided. Besides, one of the patients received two liters of the pot. iod. infusion in the udder at one time. In two cows the solution, well mixed with milk, was milked out after a quarter of an hour, whereupon a like dose was repeated. In two other patients the treatment was repeated after 11 and 20 hours, because the patients at the end of these periods had not yet arisen.

No. 9. September 25, 1896. Medium sized red cow, aged 12 years, the best milker in the entire dairy. She had calved 48 hours before the first signs of illness were noted. She had yielded at first about 20 pounds (10 kilogrammes) of milk, later the calf had sucked. She was milked three times daily besides. Shortly prior to observation she had lain stretched out on one side, but she had been turned up on her sternum and blanketed. She was very comatose, alternately stretched the head straight out and bent it to the side, the eyes could be touched by the fingers without producing reaction. The tongue was badly paralyzed. Horns, ears, muzzle, the tongue tip, as well as the legs were very cold;

the temperature in the rectum was 36.8°C .; respiration stertorous; the udder was large and tense. In the rectum a little hard crust-like fæces had accumulated. The os uteri was almost closed, three fingers could, however, pass through. The calf was healthy. Ten grammes (150 grains) of pot. iod. were injected into the udder at one time. Since in patient No. 1, some atmospheric air was caused to flow into the udder along with the pot. iod. solution, and yet this same patient was very quickly cured, and I had observed an almost typical course after the treatment, I permitted small quantities of air to flow into the udder now and then. Massage. An aloe powder of which most was lost, because the cow could not swallow; clysters, etc.

After the infusion the cow soon became warmer and livelier and the improvement progressed regularly so that in 4 hours the cow assumed a normal position in lying. On the same day, 10 hours after the infusion, the cow stood up, but gave only $\frac{3}{4}$ pounds ($\frac{3}{8}$ kg.) milk.

On the following day the cow had diarrhœa and marked iodine catarrh, on which account the appetite was very poor. Temperature 38°C . Iodine catarrh and diarrhœa disappeared in the course of five days, and the appetite returned,

On September 26, the cow gave 1.1 liters of milk.

"	"	27,	"	"	"	1.1	"	"	"
"	"	28,	"	"	"	4.0	"	"	"
"	"	29,	"	"	"	4.0	"	"	"
"	"	30,	"	"	"	8.5	"	"	"

and later day by day the milk increased to its normal quantity.

No. 13. October 8, 1896. Small, red cow aged 6 years, in apparently good condition. Had calved 14 days prior to outbreak of disease; the after-birth was not expelled until 3 days after birth, on which account from that time she had exhibited a badly colored discharge from the genitals. The udder was œdematously swollen, for which reason the cow had been milked four times daily. The last of the œdema had only disappeared the day prior to the attack. The cow had not yielded much milk during the first period after calving, not far from 5 or 6 liters daily, but had increased before the outbreak to 15 liters. The first signs of disease seen were in the evening when the cow gave less milk and staggered somewhat. In the course of the night the disease had increased much in intensity, at 3 o'clock the cow could not stand up and had become somewhat restless. I examined the patient at 8 o'clock the next morning, 12 hours after the outbreak of the disease, the cow lay listless, the head to the side, or lying straight out on the ground, at times she struck about with her head and moaned piteously. The horns, ears, the internal surfaces of the lips were cold, the tongue paralyzed. Temperature 36°C . The rumen was highly tympanitic on account of the accumulation of gases; the fæces in rectum were dry and covered with crusts, but not firm nor abundant. The bladder was distended, the os uteri almost closed, only one finger could be passed in. Treatment; 10 grammes of pot. iod. were dissolved in 1 liter of water and introduced into the udder alternating along with an abundant interrupted flow of air. Massage; an aloe powder. After the infusion the cow immediately became quiet and lay constantly with her head bent to her side; after a duration of half an hour she showed herself to be somewhat conscious of her surroundings, moved the ears, in order to drive

the flies away, reacted very quickly upon touching the eyelashes. The tongue showed active movements when touched by the fingers. After a duration of three quarters of an hour, yet before clysters were used, the temperature had increased to 36.7° C. Four to five hours subsequent to the infusion the horns and ears had become gradually warmer and the cow had now and then brought her head into the normal position; but still moaned occasionally. After a duration of five hours she lay constantly in normal position and moaned no more; after eight hours she stood up and did not stagger. She was then milked, but only gave $\frac{1}{4}$ liter of milk; later the milk yield was as follows:

October 9. 3.5 liters.

" 10. 6.7 "

" 11. 8.2 "

" 12. 9.2 "

" 13. 10.0 "

" 14. 10.7 "

" 15. 10.6 "

No. 15. October 13, 1896. Small, finely built red cow, aged 8 years, moderately fat, typical milk cow. Was milked twice before calving and had given at each time $\frac{1}{2}$ pound of bloody colostrum. After calving she was milked every 4 hours and gave each time about 1 kg. (2 lbs.) of milk without the admixture of blood. She had calved about 18 hours when the disease was discovered; this was, however, so far developed that the cow could no longer stand; the attack appeared to be very sudden.

Examined 4 hours after the discovery of the disease the cow lay completely paralyzed and comatose, the head resting against the manger. The mouth stood open and respiration was essentially oral, now and then it was accompanied by a hoarse moan. The tongue hung flabby from one corner of the mouth, the eyes were dim and the cornea could be touched with the fingers without producing any reaction. Horns and ears were cold, but the muzzle was quite warm. Temperature 37.8° C. A few very firm, crustlike fæces were accumulated in the rectum. The bladder was full. The os uteri was not closed; the entire hand could be introduced into it. The udder was large and distended; it had already become of extraordinary size before calving.

Treatment. Infusion of 10 grammes of potassium iodide in 1 liter water, interspersed with abundant injections of air; massage.

About one-half hour later the temperature had sunk to 37.5° C., nevertheless the cow now reacted to touching of the cornea, and also moved the eyelids now and then without being stimulated by being touched; the tongue was held normally in the mouth and moved feebly when sharply pressed by the fingers. I attempted to administer an aloe powder but most of it was wasted. Besides the cow received clysters, etc.

After the infusion the cow had rested quietly, mostly with the head in the flank, the respiration had become normal and the muzzle warm. But after about 14 hours the cow gave a few groans and was dead. I had no opportunity for an autopsy.

With the exception of the somewhat vivifying action immediately after injection there had been no evident results from the treatment. Either the toxin

could continue to form in parts of the udder, into which the infusion had not been forced, or had brought about some other action. As the cow was small and medium fat, it is possible that the dose of potassium iodide was too great. It is also possible that through the breaking down of the salt a specific paralyzing alkaline action upon the heart was generated, so that this effect had its beginning just at the point when the toxins had reached their maximum. If this is the case, then potassium iodide in large doses can, in patients having a special predisposition to cardio-paralytic potassium action (in fatty heart), become a two-edged sword when used in milk fever. According to Binz* the iodine salts give off free iodine when it comes in contact with protoplasm, carbonic acid and water. That such a breaking up also occurs in the body, is highly probable, and that this takes place more rapidly and in a higher degree after an infusion into the udder, if the infused iodine salt is accompanied by the introduction of atmospheric air. It is therefore impossible to determine whether the air acts directly upon the products of the broken down gland cells in the alveoli, or whether it works indirectly by the bringing about of a more rapid breaking down of the iodine salt. In the latter case, a stronger iodine action is obtained with the flow of air upon the detached decomposed gland cells, at the same time, however, a greater paralytic power upon the heart. As I did not dare abandon the introduction of air, I concluded to try, on the next patient, iodo-iodide of potassium solution in order to lessen the dose of potassium iodide and the effects of the potassium and yet secure a more intense action of iodine.

No. 16. October 17, 1896. Medium sized red cow in good milking condition, a very good milk cow, 7 years old, calved about 60 hours before the outbreak of the disease, had given quite a good quantity of milk and stood readily; yet the appetite had been somewhat less than natural and to-day she could scarcely stand up. Upon my arrival, 3 hours after the advent of the paralytic symptoms, the afterbirth had not yet been expelled. The cow was recumbent, with the neck bent in the form of the letter S, but she was not very unconscious. Horns and ears were warm and the tongue not paralyzed. The cow attempted several times to get up but could not. The udder was not tense. The faeces in the posterior part of the rectum had dried up to small hard, dry, crust covered pellets, while further forward in the rectum they were of a gruel like consistence. The os uteri was quite open, and the uterus almost not contracted at all. The placenta was attached to only a few maternal cotyledons and was very easily detached. There was a chocolate colored, stinking accumulation in the uterus but the cow had had no pains. Temperature 39.7° C.

Infusion of an iodo-iodide of potassium solution (1 gramme iodine, 5 grammes potassium iodide, 3 grammes water) mixed with one liter of boiled water. Of atmospheric air there was introduced only the small column already in the infusion tube at the beginning of the operation. Massage, etc. No irrigation of the uterus was attempted.

After the treatment the cow kept quiet and lay in a natural attitude. After 3 hours she drank some water and ate some turnips. After 9 hours there was

* Frohner's *Arzneimittellehre* 1890, S. 262.

a nasal discharge of a clear stringy secretion and some saliva dribbled from the mouth. In 19 hours the cow was up, without having been observed in the act, and she was found standing without signs of paralysis, some distance from where she had been lying in the stall. She was then milked and gave 5 pounds ($2\frac{1}{2}$ kg.) milk, which had the appearance and consistence of ordinary colostrum. The urine was brownish. The cow showed no special appetite (iodism) but drank freely. The appetite returned slowly however as the iodism disappeared.

On October 18 she gave 6 liters of milk.

“ “ 19 “ 8 “ “

“ “ 20 “ 10 “ “

The owner informed me later that after a duration of 6 days she gave a very large amount of milk, and that after the removal of the afterbirth she had shown no discharge throughout.

No. 18. Oct. 25, 1896. Medium sized white cow, very well nourished, 7 years old. The udder had become very much enlarged before birth, yet there was but little œdematous swelling confined to a small area, behind one of the glands. Immediately after calving the cow had given 9 liters milk, and at the next milking also a goodly amount, both times mixed with blood. The first symptoms of disease showed themselves first, 18 hours after calving, as: diminished appetite, decreased milk flow and a somewhat uncertain posture on the legs. But as it was evening and the owner did not recognize the affection, he left the cow to herself until the next morning. Then she could no longer get up and was very distressed.

Treatment was first undertaken about 14 hours after the advent of the paralysis. The cow was very severely attacked, lay with her head to the side, and was wholly unconscious to external impressions. Her look was blank, no reaction to touching the eyes. If the head was partly raised and then let loose, it fell to the ground like a lifeless body. The entire superficies of the body, especially the horns, ears and limbs, as well as the inner sides of the lips, were very cold. The tongue, though warm, was badly paralyzed, the temperature showed 35.5° C., the respirations apparently quiet, 22 per minute, pulse and heart-beat almost indistinguishable, 52 per minute. The mouth of the womb was not quite closed; one could insert two fingers into it. The bladder was filled; in the rectum there was found a handful of small, very hard fæces; the udder was very large and quite tense, but not œdematous, in the udder there was found only about $\frac{1}{4}$ kg. of milk mixed with blood, although 14 hours had passed since the cow had been milked. There was injected iodine-iodide of potassium solution, 1 gramme iodine, 5 grammes potassium iodide, 30 grammes water, in one liter of water; at short intervals there was allowed to enter also a small stream of air. Massage. An aloe powder with digitalis was given, of which, however, a part was lost.

After the course of one-half hour the cow began to show active signs of life, moved the mouth and ears, winked the eyes and held the head forwards, though with an S-form bent neck. The temperature registered 36.1° C., and rose, in course of $1\frac{1}{4}$ hours after the infusion, to 36.6° C. Later the cow had lain quietly for several hours, the head alternately stretched out

forwards and bent to the side and had gradually assumed a livelier aspect. After a course of 6 hours she was standing up, remained standing nearly an hour and ate some carrots. Later she got up several times. After 10 hours she was milked and gave 1 lb. of apparently normal milk.

About 18 hours after the beginning of the treatment she began to tremble at intervals, and I examined her on this account again a few hours later. Before my arrival she had become somewhat restless, was very short of breath, stood up while I examined her, but staggered here and there and fell in a very unfavorable position. Symptoms of pneumonia could not be detected. Temperature 39.0° C. Pulse quite strong, 96 per minute. Cardiac impulse strong.

The bladder was full, the urine dark brown. Fæces normal. No discharge from nose or mouth, but a somewhat snoring sound accompanying breathing. The udder had collapsed and was quite flabby. Being milked, she gave $\frac{1}{4}$ lb. milk, which was colored like normal colostrum, but in two teats were found caseous clots.

The milk fever had indeed ceased about 6 hours after the beginning of treatment, but a relapse had occurred. The etiological moment had again begun to work.

From a fear of poisoning I did not venture to use iodine or iodo-potassium iodide solution, and therefore made a trial of an injection of lysol solution, 15 grammes in 1 liter boiled water, along with introduction of air. Massage. Internally the cow, which could now swallow quite well, received a digitalis powder.

She lay quietly for a short time afterwards with her head in her flank. The respirations gradually became almost normal. After the course of half an hour she lay mostly with the head in the natural position, and after three-quarters of an hour, she got up and stood apparently steady again on her limbs. Five hours later she was quite lively, ate some hay, could easily get up and lie down, but arched her back somewhat.

Temperature 38.3° C. pulse 88, fairly strong. The heart beat of normal strength, the respiration moderately quiet. Some flow of saliva from the mouth. The udder was flabby, but the secretion from all four teats watery, similar to lysol solution. *The lysol solution had had the same favorable effect* as the iodine combination, which checked the course of the disease, but an unfavorable effect upon the milk secretion. But from this experience one can see, that it is also a local action in the udder, through which the disease can be controlled. For even if one could think, that the iodine mixture could most likely have so rapid and specific a general action after its absorption into the blood, this could not be the case with a small dose of lysol.

After the lysol treatment the cow drank now and then some water, ate hay and was free from any evidence of paralysis, until about 24 hours later, when she again had a relapse and fell in an uncomfortable position. I was called again and found her lying in a natural position, but very listless, the horns and ears were cold, the temperature indicated 38° C., pulse and heart beat almost imperceptible, 80 per minute, respirations 20 per minute, no discharge from nose or mouth, fæces normal, but in the posterior part of the rectum adherent

to the mucuous membrane through desiccated crusts. The cow paid no heed to either commands or blows, when it was attempted to get her up. The udder secretion of the two teats had again become more milk-like, yet containing occasional large lumps of casein, while that of the other two teats although the color of milk, was somewhat more watery.

Infusion of 5 grammes of potassium iodide in one liter of water. Massage. A digitalis powder.

Ten hours after the infusion the cow got up again, stood steadily upon her limbs, remained standing three-quarters of an hour, then lay down quite naturally, and got up several times, and exhibited some desire for food and water.

On the next day, the 28th, she again had a relapse with paralytic symptoms, but they were not so marked as the previous time. She could not get up, however. Two liters of a 0.5 per cent. salt solution was injected into the udder, primarily as a substitute for an intravenous injection for the purpose of stimulating the heart action, and next to induce a mild local effect in the udder; a digitalis powder. In the course of a few hours the temperature increased from $38.3^{\circ}\text{C}.$ to $39.0^{\circ}\text{C}.$, the cow became somewhat livelier and again showed some appetite. She also stood up again, but had become somewhat weak.

During one of the periods when the cow showed no paralytic symptoms and stood, the owner had received a good offer for her for slaughter, and as I was compelled to be absent for a few days and consequently had not the opportunity to complete the treatment, the cow was slaughtered about 24 hours after the last infusion, as the feebleness continued.

This persistent weakness could very readily be the result of the repeated attacks; it is also possible, however, that it was in part due to the development of the first stages of pneumonia.

No. 19 received an infusion of 10 grammes sodium iodide. She was slaughtered $5\frac{1}{2}$ hours after the infusion.

No. 44. October 15, 1897. Medium sized, red, 9-year-old, rather fat, excellent milk cow. Calved yesterday at 7.30 A. M. and to-day at 3 P. M. showed marked staggering. I attended her at 8 P. M. The cow tried several times to get up, but could not lift the body from the ground. She lay with her head alternately stretched out forwards on the ground or bent to the side, was now and then somewhat restless and moaned greatly. She had a listless appearance and the tongue was somewhat paralyzed. The horns and ears were moderately cold. Temperature $38.2^{\circ}\text{C}.$ Pulse and heart-beat imperceptible. In the rectum there was an accumulation of crust like fæces. The os uteri was almost closed. The disease was evidently progressing rapidly.

Ten grammes of potassium, in 1 liter of water were used, with introduction of air, and 5 grammes of the sodio-salicylate of caffeine were injected. No laxative powders. Clysters.

The cow then lay comparatively quiet, mostly with the head in the flank, until 12.30 A. M. At 1 A. M. she got up after having laid in a natural posture for some time, staggered to and fro and soon fell down again. About 2 A. M. she again stood up, was then free from paralytic symptoms, and remained stand-

ing for about two and a half hours. She had defecated several times and the appetite soon returned. She gave :

On August 16,	4.5	liters of milk
“ 17,	8.2	“ “ “
“ 18,	12.	“ “ “
“ 19,	13.5	“ “ “

The infusion of an iodine salt in the udder, especially when accompanied with the introduction of atmospheric air, gives the promise of a quite typical result and has in a large measure brought about remarkably prompt recovery.

In most patients the comatose condition disappeared in course of 4 to 6 hours, and in the very sick cows where the temperature was subnormal, this began to rise immediately after the infusion and increased at times in the course of an hour about 1C° .

About half of the patients cured stood up and were free from paralytic symptoms after a course of 6 to 10 hours.

Thirty-six stood up in course of the first 24 hours, 6 in the second 24 hours, 2 in the third 24 hours, 1 had to be helped up after a course of 6 days on account of paralysis of the posterior limbs, and one failed to get up on account of gangrenous foreign body pneumonia (shluck pneumonie). It depends in part moreover, upon accidents, whether the convalescent stands up after the paralysis has been removed. Then it is not certain that each cow gets up as soon as she is able to do so, and the duration of the paralytic period is consequently shorter than would be recorded. In cows cured by the ordinary methods, on the contrary, the disease continues as a rule for 2 to 3 times 24 hours.*

Patients in the first stages of the disease which under ordinary treatment almost always grow worse and worse, always in an opposite degree, become constantly better and better after the infusion and in the course of a few hours are almost sound again. It is therefore of all the more importance for the course

* Friedberger und Fröhner, Lehrbuch der Speciellen Pathologie und Therapie 1889. Bd. 1, S. 442. According to H. C. Hansen, Tidsskrift f. Veter. Bd. 15, S. 286, the disease continues ordinarily $2\frac{1}{2}$ times 24 hours. According to L. Andersen, Tidsskrift f. Veter. Bd. 23, S. 193, the disease continues in animals which recover, according to the data given, on an average 54 hours.

of the disease, that the patients come under treatment at the earliest possible moment after the appearance of the paralytic symptoms, best while the animal still stands.

Although results of the treatment rest until now upon the foregoing investigations, which under the conditions from economic considerations could only be pursued to a certain limit, yet 46 out of 50 affected cows or 92 per cent. have recovered. Only 2 cows died and 2 were slaughtered, while symptoms of milk fever were still present. But I do not attribute so much importance to these highly favorable results as to the typical course of the disease after the infusion, upon the unusually rapid recovery of a large portion of the very sick patients, and the sudden checking of the disease as soon as treatment is begun in mildly affected patients. True, 3 or 4 animals died, part from slaughter and part in consequence of inflammation of the lungs, which I look always upon as cases of the improper use of medicines per os. According to my experience most of these cases can be avoided, as a rule at least, if the veterinarian is called and attends early.

The iodo-potassium iodide solution seems to have had neither more favorable nor more poisonous action than the pure iodide of potash solution. On the contrary it appears according to No. 18 that the first had a somewhat irritant effect upon the udder. Sodium iodide was only used once (in No. 19); that the result was less favorable may be accidental. Of potassium iodide the dose of 7 to 10 grammes in 1 liter of water has been shown to be the best. The potassium infusion has also been used alone in some cases without other treatment of symptoms and have still had in such cases a typical course. In very sick animals a more energetic absorption of potassium iodide takes place, than in the mildly diseased, partly because the previously mentioned absorption of fluids bears a certain relation to the grade of the disease, in part also, because the milk secretion is most checked in the most serious cases, so that the infused solution does not meet with so large a milk stream from the alveoli and consequently can penetrate the same easier and more

concentrated. There is, therefore, greater danger of poisoning in patients severely ill. Doses of iodine which have been accompanied by no unfavorable complications in mild cases have produced iodism in individual cases when seriously affected. The infusion has produced a check in the milk flow but in the course of a few days it has acquired its normal volume again. The yield of milk noted in certain cases was attained on a restricted diet. The potassium iodide and air infusion has not produced in any case untoward affects upon the udder nor upon the quality of the milk. Boiled water has constantly been used for the solution. For use, the temperature had best be $40-42^{\circ}\text{C}$., so that after its infusion into the udder it shall still have a somewhat higher temperature than the milk in the udder. Through a relatively high temperature of the solution it loses its specific weight and can in that way be in better condition to penetrate the alveoli. If the water is boiled immediately before the patient is attended, and poured, almost boiling hot, into a bottle and this immediately wrapped in several thicknesses of paper, the solution can still be burning hot when unwrapped an hour later. The milking out before the infusion, and the hourly massage after the same must as far as possible be carried out. A small volume of air should, where possible be forced into each gland more at the beginning than at the close of the infusion.

Where the disease threatens to run a very rapid course it would perhaps be well to try to stimulate the action of the heart at once and to increase the arterial blood pressure by means of intravenous injections of physiological salt solution (0.5 or 0.6 per cent.). I have however hesitated to apply this in the usually overcrowded cow stall; a subcutaneous solution of several liters of salt solution is not practicable. For this reason, since my attention has been particularly directed to the cardiac paralysis, I have come to rely chiefly upon subcutaneous injections of camphor, coffee, and especially caffein-injections. The first agent I have used, in view of the possibility of slaughter, only upon the owner's consent. The caffein has shown in

doses of 4 to 5 grammes, a special stimulating effect upon the heart's action.

I am consequently disposed to prefer this to the other remedies. If no great danger of death is impending the cardiac power can probably be roused by abundant rectal injections of salt solution. As remarked before, in milk fever absorption of fluids takes place with great rapidity, at least in the most posterior parts of the rectum. But internally one can use laxative medicines and cardiac stimulants in the form of drenches only in those cases where the power of deglutition remains. From the standpoint of prophylaxis, the secretion of milk dare not be forced, except for pressing reasons, by milking before calving or by absolutely clean milking after calving during the first two or three days.

It is also highly probable that a dose of potassium iodide, given shortly before or immediately after birth, through its action upon the products of tissue change in the udder and its power of lessening the milk secretion, can act as a preventive. On the other hand the infusion of potassa iodide solution in the udder, as a preventive, must be regarded as too delicate, since this should as a rule be administered by a veterinarian only.

Through the foregoing studies and the experiments based thereon I hope to have lifted the veil which shrouded the heretofore enigmatical cause of milk fever; I hope further to have pointed out the source of the cause, as well as to have devised a specific, practical method of handling.

It would be highly desirable if by further experimentation there could be found a more neutral acting, best of all a medicine having a more stimulating effect upon the organism, especially upon the heart's action, with the same antitoxic powers as potassium iodide, a remedy, which the udder could, at the same time, bear equally well. If, for example, the effect of the suprarenal capsules (oposuprarenalinum) offered by Merck,* which it is claimed antitoxically increases the cardiac power as well as increasing the blood pressure by contracting the ar-

* Jahresbericht 189. (The preparation was not yet in commerce on May 22, 1897.)

teries, or some other remedy, should constantly be sought which acting on a similar line and comparatively neutral, which by infusion into the udder acts more directly upon milk fever.

I therefore regard the study from the standpoint of treatment of the disease as by no means completed, but very much hope that it can be improved. I not merely expect, but hope, that very much must be changed in, and very much added to, these, my theoretical studies, especially from the physiological and chemical sides; for our knowledge in relation to the breaking down of tissues and body fluids, and especially the products of tissue change occurring in certain organs under ordinary conditions and the import of these, to the entire organism is, unfortunately, as yet very imperfect. I hope, therefore, that this work of mine can serve as a preliminary basis for further research, which, besides chemical observations, must at the same time rest upon physiological and chemical foundations.

When I presented a report at a meeting of veterinarians in Copenhagen in the autumn of 1897, upon the cause and treatment of parturient paresis, instructor C. O. Jensen proposed a collection of the data upon the results of the potassium iodide treatment. He also announced his willingness to undertake the work.

In the January number of the *Maanedsskrift for Dryläger* there is presented a summary of the data thus obtained. Reports from 65 veterinarians are included. The report comprises in all 412 cases of calf fever, which were treated with potassium solution infusions in the udder, including therein the 50 cases already mentioned by me. Besides 5 patients were treated with subcutaneous injections of iodine. Of these five cases three ended fatally. Of the 412 cases about 90 per cent. recovered from the calf fever, while later 3.88 per cent. of these died or were destroyed on account of inhalation pneumonia and metritis. Regarding the course, details accompany the reports of 288 patients. Of these 249 got up in the first 24 hours after the beginning of the treatment, and, indeed, 27 after 1-6 hours, 135 after 6-12, 52 in 12-18, 35 after 18-24, 18 after 24-36, 11 after

36-48, and ten cases for the first after 48 hours. The dose of potassium varied from 5-10 grammes. Often there were given without injury, 20-24 grammes in the course of one day, and to one animal there were given 20 grammes at one time. The infusion of potassium iodide is constantly followed by a checking of the milk secretion, but this has become normal again in the course of a few days, only in two cows has it remained lessened for a longer period.

Monatshefte für Praktische Thierheilkunde, Bd. IX., S. 241.

A NEW TREATMENT OF PARTURIENT PARESIS OF COWS.

BY PROF. OLOF SCHWARZKOPF, FLUSHING, N. Y.

A Paper read before the New York State Veterinary Medical Society, September 14-15, 1898, with a Postscript written for the AMERICAN VETERINARY REVIEW.

Of the diseases of domestic animals incidental to seasons none is of a more serious nature and more disappointing to the veterinarian with rural practice than the so-called milk fever of cows. Every year this disease makes its appearance at the calving season and continues more or less unabated during the hot summer months. From the grave character of the disease, from the fact that it befalls only valuable, well-bred and well-fed cows, from the conflicting theories of the pathology of the disease and the utter absence of accurate and controllable therapeutics, it remains a disease dreaded by all veterinarians whose lot it is to deal with it in practice.

The theories on the pathology of milk fever, historic and present, are interesting not only in themselves but specially so as illustrating the periodic changes in medical ideas. They can, however, only briefly be referred to, as the object of this paper is to be concise and practically instructive. The oldest pathological theory which may have a claim to be scientific is that of Bentele dating back to the early years of this century. He and his followers considered the disease a lacteal metastasis, and in old veterinary books we read of milky contents in the kidneys, of milky urine, of lactiform substances found in the

lungs, etc. This theory has been forgotten by the present generation of veterinarians, but if signs are true it may be revived in a modified form. Besides the later theories of English writers which are known to you, there is that of Harms, of Hanover, who explained it as a result of suction of air into the blood vessels during parturition, followed by cerebral anæmia and paresis. This hypothesis was born at a time when fatal results were obtained by the absorption of air during operations in the early days of modern surgery, and it was apparently substantiated by the presence of air globules in cerebral vessels, a condition which later researches have shown to be the result of post-mortem blood decomposition. Then, there is the theory of Frank, of Munich, who considered the disease a result of the sudden and grave circulatory changes as produced by the abrupt loss of a large area of blood circulation in the uterus, forcing large quantities of blood into new channels, especially the brain, thus producing cerebral congestion, followed by encephalic œdema and anæmia. This complex theory, based on an intimate anatomical study of foetal and uterine circulation, withstood the scientific criticism of years and was until recently accepted all over the Continent of Europe. But of late it has been more or less superseded by the more modern theory of Schmidt-Muhlheim, who advanced the theory that the disease was due to auto-intoxication by certain cadaveric alkaloids similar to the sausage-poison. He argued that these poisons develop within the uterus by the decomposition of the lochia, favored by the rapid occlusion of the neck of the uterus as observed in milk fever. He based his theory on the result of the researches in experimental poisonings of Hoppe-Seiler, who discovered that a number of alkaloids, especially ptomatropine, ptomacurarine, and mytilotoxine, produce a paralysis of certain muscular groups, such as the pharynx, eye, etc., and in severe cases end in a paresis of the striated muscular fibres of the extremities and the unstriated fibres of the intestine and blood-vessels. No one can deny that these symptoms have a striking resemblance to those so commonly exhibited by milk fever. This brief review of the

principal theories shows that they have ever been influenced by the predominant thoughts and discoveries in pathology, and they demonstrate the intense desire of our professional predecessors to unravel the mysteries of the nature of this disease.

If we turn to the therapy of milk fever it is impossible to enumerate all the drugs that have been applied and found wanting. They number by the hundred; they range from the most crude and empirical applications of large quantities of drugs to the delicate use of the new biological products, and they all have been found worthless or of doubtful value. True, there are practitioners who believe they have found a "sure cure," but sooner or later they will find, as we all have found, that at one time we may be quite lucky with a certain kind of treatment while the second or third time we are decidedly unlucky. It is as Prof. Viborg once said: "Manchmal hilft alles, Manchmal hilft nichts" (Some time anything helps, some time nothing helps). I may summarize these points by saying that the medicinal treatment of this disease demonstrates most truthfully to the unbiased observer that it is not the drugs that act upon the diseased body, but that it is the living organism that reacts upon the drugs as long as it is capable of response. If from one cause or another the life of the animal is stunned, the so-called physiological action of drugs is left to be an empty phrase.

Nevertheless, there are certain methods of external and internal application which if employed at the proper time and with proper precautions tend to assist the struggling organism to overcome its morbid condition. They should never be dispensed with whatever our future treatment may be. The first indication to follow is to put the animal in a comfortable position on a copious and clean bedding, which is not always an easy matter. Then we must attend to the abnormal external temperature of the body by the use of external stimulants, assisted by friction with brushes and by covering the body in woolen blankets. Following this the udder should be thoroughly milked out, while we empty the rectum by manual extraction of the fæces, injecting immediately afterwards a pint of a mix-

ture of glycerine and water of equal parts, which rarely fails to assist in periodic evacuation of ingesta. Quite often I have emptied the bladder with apparent relief.

But when we now attempt a treatment of the alarming symptoms of distress so commonly exhibited by the animal, the deep mental depression, the paralysis of the muscles and the complete cessation of peristaltic movement, we fail. As the pharynx is early paralyzed, deglutition is difficult, if not impossible, and excludes the application of medicines per os. Thus we must rely upon hypodermic medication. To counteract the nervous depression veratrine, caffeine, strychnine, spirits of camphor, etc., have been recommended. I have applied them all and found that veratrine is the only agent to which the organism regularly responds by a profuse perspiration, but from which no lasting benefit is visible. To stimulate the peristaltic movements eserine has given me many prompt results, but in severe cases it is absolutely inefficient. Of the more modern methods of treatment the venous infusion of the normal salt solution has given me promising results.

Out of three cases so treated two recovered. The solution undoubtedly produces a general reviving effect, easily perceptible. But a relapse may follow, which leaves the animal in a worse condition, and repeated infusions of such large quantities into the jugular vein of cows so diseased are impractical because the muscles of the bent neck, if straightened, contract spasmodically, preventing the operation. Besides, the cow-stable cannot readily be fitted into a laboratory and the preparation of the solution and the process of infusion require a cleanliness and an assistance that cannot be had in such surroundings. To overcome these difficulties I have tried the hypodermic injection of the artificial serum of Cheron, which was recommended as a substitute for the normal salt-solution as being of more precise action and applicable in smaller quantities. Of two cases so treated one came to rapid recovery, the other ended in death, which appeared to be hastened by the injections.

This was my experience with the treatment of the disease

when I read last winter a short notice in the *Berliner Thier-ärztliche Wochenschrift* announcing the discovery of a new treatment of milk fever by veterinarian Schmidt, Kolding. According to him the cause of the disease must be located in the udder, which, by the suddenly increased lactation after birth, loosens great masses of old glandular cells (colostrum) in a sort of cleaning process. These undergo a decomposition and form toxins which are absorbed into the blood circulation, resulting in auto-intoxication. He, therefore, directed this therapy against the udder and particularly against an abnormally high milk secretion, both qualitative and quantitative. It being known that iodide of potassium has the effect of decreasing the milk secretion, he experimented with a solution of this drug by infusing it directly into the milk-glands. Out of fifty cases so treated forty-six recovered.

Schmidt's treatment is in detail as follows: After attention to the first symptomatic treatment the udder is milked out, thoroughly cleansed with soap and water and the udder and teats disinfected with a lysol solution. Iodide of potassium, 7-10 grammes, are then dissolved in one litre of freshly boiled water, the solution filtered and cooled to 40° and slowly infused into the four teats in equal parts. The infusion is accompanied by massage of the udder. The apparatus for infusion consists of a glass funnel, a rubber tube of 1½ meter of length and a milking tube. He recommends 5 grammes of caffein with 10 grammes of distilled water subcutaneously if the pulse is weak, and if deglutition is not impaired an aloe powder is given per os.

This treatment is certainly a wide departure from our customary methods. It is interesting because it is new, simple and direct, and if the hypothesis of the cause of the disease is correct it must be scientific. I confess that I was sceptical at first, but was resolved to try and criticise afterwards. Thus I can report the following cases:

Case I (Failure).—On May 23, 5 P. M., I received a hurry-call to come to a cow near Whitestone which was bloated. When I arrived I found the animal, a Jersey, lying in a pas-

ture, the head bent to the left side. She was in great distress, groaning heavily, grinding the teeth and was in tympanitic condition. From a hurried verbal examination of the owner, which brought out the fact that the animal had calved two days previously, I informed him that the cow had milk fever in a severe form and that the prognosis was unfavorable. I resolved to try Schmidt's treatment, and after giving directions for first treatment, drove to the nearest drug store to procure iodide of potassium and a new syringe, as I had not yet acquired an apparatus for infusion. When I returned I found the cow in worse condition, but proceeded to prepare the iodide solution in a nearby kitchen. I found the injection into the teats a tedious process, although I had no difficulty in inserting the syringe, but it had become dark and I had to proceed by the light of a lantern. When I had finished and given a hypodermic injection of eserine, I watched the animal for two hours, but could see no effect of the treatment. When I called early next morning I was informed that the cow had died at 4 A. M. I opened the udder and found that the solution had been entirely absorbed and that no inflammation had resulted from the manipulations.

Case II (Recovery).—On June 2, 10 A. M., I was called to College Point to a cow reported apparently suffering with milk fever. I found the cow, a Jersey, in a pasture, unable to rise and trying to keep the head straight, which would occasionally fall to the left side with a jerk. The case presented a light form of the disease, but I made the prognosis doubtful. I was prepared for Schmidt's treatment, made the solution in a restaurant and infused it through the apparatus, which worked like a charm. I applied hypodermic injection of 5 grammes of caffein, and, noticing that the animal was bellowing for her calf, which had been removed by the owner, I had it returned and bedded next to her, which quieted her greatly. At 7 o'clock at night I received a telephone message that the cow was up but very weak. I called the next morning and found her still weak and swaying from one side to another when moved. I applied

a stimulating drink and left. On the third morning the message said the cow was still weak but otherwise all right.

Case III (Recovery).—On July 6, early in the morning, I received a call to go to Douglaston to a cow that had calved and was sick. I found the animal, a fine Jersey, in a box-stall with all the symptoms of a severe form of milk fever. I informed the owner of the unfavorable prognosis and then applied Schmidt's treatment at 9 A. M., injecting 10 grammes of the iodide solution. Being requested to call again, I arrived there at 5 P. M. and found the cow little if anything changed, but not worse. I resolved to give a second injection of the iodide solution, reduced to 5 grammes which was easily done. I called again the next morning and found the cow still lying, but head erect and trying eagerly to consume a bran-mash. Third morning the cow was reported up and apparently well.

Case IV (Recovery).—On July 14, 4 P. M., I was passing through Whitestone when I was halted and requested to attend to a sick cow. I found same in pasture suffering from a light attack of milk fever. After applying first treatment I went home to get my infusion apparatus and one hour later I was applying Schmidt's treatment. I called the next morning and found the cow still lying, but being coaxed with her calf she got up with assistance. The milk secretion was rather scanty.

In conclusion, I wish to say that, favorable as these results appear to be, I have learned to be cautious, and I shall warn you against too much enthusiasm. True, I have never had three cases in succession that recovered as well as those above cited, but we all have seen good recoveries before. One point I want to make standing out clearly, namely, that Schmidt's treatment requires a painstaking thoroughness and cleanliness, and that the manipulations of infusion are a delicate process that should not be performed by crude hands. If you will observe these points scrupulously and skillfully then the treatment will be a pleasure to yourselves and give great satisfaction to the intelligent class of your clients. I hope you will report

your good results and not pass in silence over your failures, for it is rather by such that we learn than by continuous success.

POSTSCRIPT.

Since reporting the above joint cases I have to add another application of Schmidt's treatment :—

Case V (Recovery followed by Mastitis).—On October 5, early in the morning, I was called to a cow at Bayside that had calved three days previously and had shown first symptoms of disease the night before I received the message. I found the cow, a fine Jersey, in a box stall in a lying position. She was utterly unattentive and at times would groan. The head was still held in a straight position, but the neck showed a peculiar stiffness. The owner, a farmer, had already made the diagnosis of milk fever and gave up the cow as lost, reiterating that her mother also had died of milk fever. I did not have the infusion apparatus with me, but attended to her comfort by providing her with copious bedding, removing a large quantity of dry fæces from her rectum and applying a clyster of glycerine and water. As I was out of caffein I gave a hypodermic injection of eserine, and then drove to my office, which is about two miles distant. Returning in the afternoon, at 2 o'clock, I found the cow worse and applied quickly the infusion of iodide of potassium—about 18 to 20 hours after first symptoms of disease. I gave also a second injection of eserine, as the peristalsis was totally suppressed, warned against any other treatment and left, fearing that the infusion had been applied too late. When I called the next morning I found the cow standing in her stall, somewhat emaciated but otherwise none the worse for her illness. The udder appeared normal, but milk secretion was scanty.

On October 9, four days after the infusion of the medicine, I was called to the same cow and found her suffering from a left-sided mastitis. The owner naturally brought this complication in direct connection with the infusion. But inasmuch as the cow had apparently recovered from milk fever, but had been confined during five days in a warm box-stall and then turned

out into a yard wet by rain and exposed to a rough wind, in order to clean the stable, I feel safe in concluding that the mastitis had been caused by taking cold after recovery. Besides, this is a common cause of mastitis, so frequently met with in dairy stables.

Yet this case gives a warning, and I can only repeat my advice to observe the strictest carefulness and cleanliness. Anticipating just such an occurrence I had added to my outfit for Schmidt's treatment a white oil-cloth on which I place the udder for disinfection after I have thoroughly washed it with soap and water. For disinfecting the udder, and especially the teats and the infusion apparatus, I use creolin, which may be considered as efficient as the lysol recommended by Schmidt. Finally, I wish to mention that I have improved the apparatus for infusion by inserting at the lower end of the rubber-tube the glass-tube of a straight eye-dropper instead of the recommended milking tube. By this means it can be observed when the column of fluid has been fully expended into the teats, which must be guessed at by using a milking tube.

For the present I shall abstain from a critical consideration of the value of this new treatment of milk fever. It has been said, and it is very true, that this method of treatment is empirical, as we do not know the exact cause and nature of the disease. But if the rapidly increasing number of favorable recoveries are impassionately weighed, it looks as if Schmidt's theories cannot be far from being correct, and that after all we have been enriched by a new method of treatment which, by further improvement, is likely to lead to a successful therapeutic of milk fever.

O. S.

VETERINARIANS OF CHICAGO have an excellent chance to study pathological anatomy and histology under the direction of Prof. Klebs and his very able assistant, Prof. Ziet. Only eight B. A. I. veterinarians avail themselves of the opportunity. The hours of attendance are from eight until eleven Tuesday and Friday evenings.

[WRITTEN SPECIALLY FOR THE AMERICAN VETERINARY REVIEW.]

THE TREATMENT OF THE U. S. ARMY HORSE IN THE LATE WAR.

BY PROF. OLOF SCHWARZKOPF, V. M., FLUSHING, NEW YORK.

No doubt the people of the United States may well rejoice at the brilliant victories achieved by the army and navy, and should be proud of the magnificent results obtained, which deserve everlasting gratitude towards the leaders and bearers of our arms. But the time has now arrived to calmly study the causes of the deficiencies with which our military organization and administration has been charged. Many of these charges will be found to be groundless, because suffering and death are inherent to the exigencies of war. But other charges have a true foundation, and can be readily explained by the unpreparedness of the United States for a foreign war, and especially so by an antiquated system of military organization.

There can be no objection to such investigations by either the War Department or the heads of army departments, if they are undertaken in a just and unbiased spirit, and by those who are in a position to judge as experts in special military branches. In fact, such investigations should be welcomed, because it is only in this way that suggestions for improvement can be formulated and a repetition of avoidable mistakes be averted.

The treatment of the United States soldier in the late war has already come in for a more than just share of criticism by philanthropic men and women all over the country, and the grievances of the "boys in blue" are being looked into by a board of honored and experienced warriors. But no voice has as yet been raised against the silent sufferings of the other animate beings that help to constitute an army in the field, and on whose work so much depends in war. It appears from reports of trustworthy correspondents, and from the writer's own observations, that within a few short months thousands of horses and mules have been unserviceably crippled or killed in camp or during transportation, from needless exposure, neglect of care

and from diseases, for no other reason than an utter absence of expert care and authority. Surely, horses in the field, when tied to picket-lines or confined in corrals, can no more be cared for as in the garrison stable as can the soldier in the tent enjoy the comforts of home life. But the ignorance and carelessness in handling animals during transportation has been so apparent; the negligence as to first principles of feeding and caring at camp so gross; the sanitary supervision so ridiculously rudimentary, and the medical treatment of wounds and diseases so crude and cruel, that one wonders whether all this could happen in a civilized army without more than a passing comment by those in authority who in civil life had seen these matters attended to on a rational basis. All this has happened, too, while the vast majority of these public animals were simply retained in camps, and it is not difficult to foretell what would have been the result of this lack of expert supervision if these many thousands of horses and mules would have been hurled into the open battle-fields on foreign soil.

There has been no attempt by the officers in charge of the camps to explain this state of affairs any further than to lay it at the door of the Quartermaster-General. But this gentleman may have been too busy during the war to have noticed these complaints against him, so we will reiterate a few authentic reports for his information :

N. Y. *Sun*, Aug. 16, 1898, page 4.—*With the Expedition to Porto Rico.* This expedition left Tampa on July 23. It consisted of Light Batteries C and M., Seventh Artillery, Troop B, of Second Cavalry, a pack-train of 600 mules, ambulances, etc., all under command of Brigadier-General Schwan, U. S. Volunteers. It is no purpose of this letter to criticise, but certain defects should be mentioned and attention called to them in order that they may be avoided in future. So far as the transportation of men is concerned, since they can move about the ship, little need be said. But when it comes to the dumb brutes, enough cannot be said or written. The horses of Light Battery C were placed between decks and just above the hold of the transport *D. H. Miller*, and it was absolutely pitiable to witness their sufferings. Even the passages on either side of the boiler-room were fitted up with stalls in which the animals, crowded like sardines, have actually sweated away their lives during the past seven days. There can be no economy in such proceeding. The Society for the Prevention of Cruelty to Animals should certainly have an agent or two at every port from which trans-

ports may sail in the future. The Quartermaster Department is naturally desirous of sending forward as many animals as possible, but when treated in this manner they will be utterly useless, even if they finally arrive alive at their destination. What is needed is the employment of men experienced in these matters. The quartermaster is too busy, even if perfectly capable, to attend to such details.

Sun, Aug. 16. * * * The ignorance displayed in the shipment of horses and mules needs severe criticism. The first horses shipped at Tampa were absolutely lowered into the hold like wooden boxes, and before a dozen of them had been thus accommodated nine of them were dead, and had to be lifted out again. * * *

N. Y. Herald, Aug. 20, 1898. The death rate among the cavalry horses at Tampa and Fernandina is extremely high in most of the regiments. Many of the horses, from lack of rations, swallowed quantities of sand in grazing in this arid country and died from that. Almost all were more or less blistered on the back by the intense heat, and these blisters often formed sores which finally rendered the horse useless. Many died of heat-prostration and disease, but nobody seems to know what this disease really is; some say it is epizootic, others pronounce it glanders. The Tenth Cavalry suffered smaller loss than any other regiment mainly because they had a veterinarian who insisted on the best of care of them. The result was that the regiment has come out with as sturdy looking a lot of horses as one would wish to see.

Dr. J. P. Turner, in a report to the thirty-fifth annual meeting of the American Veterinary Association, writes as follows: Sept. 2, 1898: When one contemplates four million dollars being spent for war-horses and mules without any proper veterinary supervision, one wonders at the recklessness of such mismanagement. A glance at the thousands of horses and mules in the great corrals at Tampa, Fla., would show any honest man that something is wrong in the present system. During the month of May from five to ten thousand animals were in this corral and *not one veterinarian* to treat them, and dozens were dying every day. Later on, one of the old non-graduate army veterinarians, a man past sixty years of age, was sent to this corral to save him from the climate of Cuba, when the invasion was ordered. He was without authority, assistants, hospital or medicines, so his value to the corral can be imagined.

Dr. G. E. Griffin, *Fifth U. S. Cavalry*, reports in the *AMERICAN VETERINARY REVIEW*, November, 1898, that the government-teamsters at Tampa, watered the mules in pools formed by rain in the depressions of the palmetto swamps which were charged with decaying organic matter. The object of the teamsters was no other than to save themselves from walking to the designated water-trough at a distance. The veterinarian had no authority to prohibit this proceeding. The result was that in a few days the wagon-master reported several cases of "cracked heels," but on examination it was found that water leeches had penetrated the skin near the hoof and had produced foot-rot. Thirty-two mules of one wagon train became so afflicted, five among them died from sloughing of the hoof, others had to be shot to end their suffering and several were left behind uncured when the command left.

The N. Y. Mail and Express, October 11, 1898, reports that the Quartermaster Department purchased "in haste" 17,149 cavalry and

artillery horses and 21,090 draught-mules. These 38,239 public animals were designated to different camps. The writer has seen several thousand of these animals at the camps, on Long Island, and in his opinion a great majority of the horses at least were unfit for military service in war and a number of them were noticed to be unsound at first glance. The slipshod manner in which these horses must have been purchased was demonstrated at the auction sale of the horses of the Rough Riders held at Fiss, Doerr & Carroll, New York. It had been announced that these horses were carefully selected by government-inspectors and they drew a big crowd of purchasers. But when great numbers of undersized, unshapely formed horses were produced who showed plainly the broncho type or the lowest kind of trotting formation, the astonishment and disgust of the crowd knew no bounds and many hard jokes were cracked at the expense of the government. It was stated that the purchasing agents of the Quartermaster Department had paid \$65 a head for these horses, yet without ever having been to war and being in fairly good condition they could not sell for more than \$8 to \$15. One tiny little horse only was bought in for \$85 for mere curiosity's sake, by a riding school amid plenty of cheering, because he was the only animal that had been at the Santiago battle and had a bullet hole in one ear to prove it.

The above concise reports contain enough evidence to show that the purchase of public animals for war purposes, the mode of transporting them to their destination, and the methods of their sanitary supervision at camp have been inefficient and fundamentally wrong. The Quartermaster Department, to whose sphere of work and direction these matters belong, has thus shown itself incapable to cope with them intelligently in the emergency arising out of the war, and—it was never prepared to fully do so in peace. Whenever and wherever special knowledge and training have been required, the army and navy have been alert and prompt to secure the services of men so educated. This is simply the common result of modern civilization. But the Quartermaster Department has not been progressive enough to learn that the intelligent execution and administration of veterinary matters calls for expert knowledge and skill of a higher order, and that such accomplishments can only be possessed by properly educated graduates of veterinary medicine. Instead of accepting the opportunities for the institution of an efficient veterinary service in the United States army, so frequently offered by the Military Committee of Congress, the Quartermaster-General has persistently refused such offer, and has frittered

away his time in useless endeavors to create amateur veterinarians from the ranks of the assistant-quartermasters, cavalry and infantry officers, chaplains,* farriers and civilian-agents, which experiment must inevitably result in failure, and which has actually produced conditions as cited above.

The writer feels that the time has passed to argue the questions whether an organized veterinary service would materially improve the condition and activity of an army in the field, and whether it would bring about a saving of needless expenditures. This has been demonstrated long ago by those European armies which have maintained such corps for the last fifty years or more. The only points open to discussion are these: First, what kind of a veterinary organization are we to adopt, and second, how are we to institute this new organization into the existing army service?

We must naturally look for a model for such organization to the foremost armies of Europe. Not that we should adopt such in its entirety, for foreign armies have their peculiar features that are objectionable to ours. But we must find a basis on which to build our future organization, letting it work out its own forms and merits according to the spirit and the needs of this army. From this point of view the British army veterinary organization commends itself as the most natural and practical to build from. It consists of a corps of commissioned officers, whose personnel is selected from the graduates of the English veterinary schools. It is in charge of a principal veterinary surgeon with the rank of colonel, and the personnel consists of staff veterinary surgeons with the rank of lieutenant-colonel and major who are attached to the army corps; of veterinary surgeons ranking as captains, most of whom are detailed as instructors to various training schools; of assistant veterinary surgeons who are attached to the regiments of cavalry, artillery, and to the battalions of transportation, and of farrier-majors, farrier-

* A chaplain at a post in the Northwest, situated on an Indian Reservation, has been for some time detailed to inspect (?) cattle supplied to Indians for consumption, although at the same post is stationed a veterinary surgeon.

sergeants and shoeing-smiths, who compose the non-commissioned personnel of the corps and who serve with the troops and batteries. The Department has its own administration, it renders reports and returns, controls its medical stores, purchases and condemns horses, inspects forage and cattle and meat for army consumption, and superintends the military shoeing-school at Aldershot.

In the field the "regulations for the organization of the line of communication," issued in army circulars of June 15, 1887, the veterinary officers are stationed as follows: The principal veterinary surgeon attached to Headquarters, one staff veterinary surgeon attached to each army corps, one staff veterinary surgeon attached to the Inspector-General of the line of communication. At the advance depot and veterinary hospital, calculated for 500 horses, the personnel consists of: One veterinary surgeon in charge; 3 assistant veterinary surgeons; 1 farrier-major; 8 farrier-sergeants; 8 shoeing-smiths.

It seems superfluous to comment on the character of such an organization or the work that must come from it. To those who have never heard of an army veterinary corps, or who have never seen the results of intelligent veterinary service, it may look appalling, and to those who have reason to fear it, it may be a shock. Yet it is the natural outgrowth of actual experience gathered in many wars, especially in the colonies, and as the English war authorities are noted for their good common sense and practical accomplishments, they must have found it a paying investment or they would not have kept it and improved it from time to time as they have done.

The Italian army veterinary corps is similarly constituted, and its officers are commissioned, ranking from colonel to lieutenant. In the French army the veterinary officers are also commissioned, the principal veterinary surgeon ranking as lieutenant-colonel. In the German and Austrian army the veterinary surgeons are not technically officers, but as non-combatants they rank as "higher military officials," equivalent to the officials of the Judge-Advocate's Department, Paymasters

Department, Subsistence Department, etc. They wear uniforms similar to those of the line officers, and their pay and allowances correspond to the grades of majors, captains and lieutenants of the mounted service. In both armies a colonel of cavalry is the Inspector-General of the military veterinary service. The instructive divisions of these army departments are especially commendable to other armies as they furnish instructors of military veterinary science to the officers attending the cavalry, artillery and riding-schools, to the advanced military cadets, to the Subsistence Department for the inspection of meats, and to the many excellent schools for army-shoeing smiths.

Suggestions for the Establishment of a Veterinary Department of the U. S. Army.—Considering that the above sketched army veterinary organizations are intended as working units for much larger standing armies, we must necessarily reduce our own future veterinary department to a size and standing commensurate with the extent of the United States army. It matters little whether the present ten regiments of cavalry are retained or extended to twelve, but it is hoped that the three regiments of field artillery may be established as recommended by the Army Reorganization Bill, and it is further hoped that the thousands of detached horses and mules of the Quartermasters Department may be formed into companies or battalions of transportation. As far as the numbers of public animals and their professional supervision are concerned we must note here the astonishing fact that in 1890, *the British War Department controlled 13,600 public animals and had an established veterinary corps of 200 veterinary officers, whereas the United States army at the same time controlled about 15,000 public animals and employed fourteen civilian veterinarians.*

We cannot touch here upon the reasons for this wide divergence, but from it alone it appears hopeless to suggest the establishment of a complete veterinary corps in the United States army. Thus we must commence at a modest scale and yet try to make this service effective. This can be accomplished, the writer believes, by establishing a corps of 40 veterinary officers

provided they are properly graded in rank and can command and instruct the farriers and shoeing-smiths of the troops and batteries. Figuring their subordinate personnel as approximately consisting of 400 farriers and smiths, the personnel of the veterinary department would come up to about 450 officers and men.

The administration and direction of such a force, with its hospitals and stores of supplies, etc., should certainly be under the guidance of an officer ranking as major. It has been suggested by some higher army officers, who are interested in this scheme, that the major commanding this corps should be selected at the start, from the cavalry regiments or the Quartermaster's Department, and that his office be attached to the Quartermaster General's and he be made a chief of bureau. The writer thinks it rather odd that a professional veterinary corps should be directed by a professional soldier; but inasmuch as the duties of this officer would be purely administrative, and in order to smooth things over for a start of such a bureau or division, he is inclined to yield to the wishes of those who are favorably impressed by such bureau but who retain a certain amount of excusable distrust. But there should be no yielding on the point that to the professional veterinary officers the way of promotion should be conceded, and that they should be allowed the professional direction and advice of their own superior officers. Only in this way an efficient force could be maintained. It would be illusory to give to a limited number of veterinarians the rank of mere second lieutenant, as recommended by a bill before Congress for several years. Little good, if any, could come from such a measure, as it is easy to foretell that it would entail no end of conflict of authority and responsibility under the existing organization of the army. Thus constituted the Veterinary Department would consist of :

One major, in charge (Officer of cavalry or of the Quartermaster's Department.)

Five captains, mounted :

One attached to the Bureau at Washington.

One detailed as instructor at the cavalry and artillery school at Leavenworth.

One detailed as instructor at West Point.

One in charge of a shoeing-school to be established.

One in charge of a remount-depot to be established.

In case of war these five veterinary captains should be attached to the staff of the army corps.

12 first lieutenants, mounted, detailed as veterinary surgeons to the regiments of cavalry.

20 second lieutenants, mounted, detailed as assistant veterinary surgeons to the regiments of cavalry and artillery, and at such army-posts where larger numbers of animals of the Quartermaster's Department are stationed.

200 farriers, ranking as sergeants, and attached to troops, batteries, etc.

200 shoeing-smiths, ranking as sergeants or corporals.

The duties of this department would be, in outline, as follows : The medical and surgical treatment of sick and injured public animals, their sanitary supervision in quarters or field, the purchasing, storing and distributing of medicines, instruments and appliances, the purchasing and condemning of horses and mules, the inspection of cattle and meat for army consumption, and the instruction of mounted officers, of advanced cadets, and of farriers and shoeing-smiths.

The drafting of a bill, embodying the above sketched scope of work, and the rank, pay and tenure of office of these officers should properly be executed by the War Department.

The establishment of such a veterinary department in the United States army depends upon Congress. If to this body of enlightened men the disgraceful condition of the present veterinary service is explained, they will surely remedy it. They should know that at present there is no veterinary organization whatever in our army ; that the War Department considers the 14 army veterinarians as civilian employés as regards their privileges, but that many minor military authorities regard them as soldiers as regards their duties ; that they are appointed by the Secretary of War, but that they can be discharged at the pleasure of their regimental commander ; that their pay is only \$100 and \$75 per month ; that they have to borrow medicines and instruments from the local quartermaster, while the troop commander and his farrier can squander them ; that their status in many other respects is utterly confused and without a precedent in the history of military organizations. These Senators and Representatives will then understand that the services of veterinarians, so hampered in their position, must be very limited, and they can

be told that—*de facto*—they are far below the par of ordinary application of knowledge and skill. They will understand that such equivocal position can only draw and retain few qualified men, and that there are at present unqualified men in active service for whom Congress should find an honorable outlet by pensioning them, commensurate with the long and faithful services rendered to the army and the country. And it should be explained to the members of Congress that modern veterinary education is fully equivalent to that of military education, and that the State of New York, for instance, exacts by law a higher standard of preliminary education for veterinary colleges than is demanded at the U. S. Military Academy located within her borders ; so that the personnel of an intelligent and efficient veterinary corps, as suggested above, could be easily secured if inducements are afforded to men of experience and standing in the veterinary profession to enter the military service.

So far the knowledge of these disgraceful affairs in the army service has been confined to the War Department and to the veterinary profession of the country. But if they should become public, the people of the United States would rise in a storm of righteous indignation. They have loudly demonstrated that they want a clean, intelligent and humane treatment of their soldiers, and if they knew they would just as loudly condemn any inhumane and incapable treatment of the horse ; for the human love of the horse is natural and is the endowment of a kind Creator, who has deeply stored it in the breast of man.

HIPPOPHAGY.—In Paris, during the year 1897, 22,029 solipeds were killed for consumption and sold at the numerous horse meat markets. These included 21,667 horses, 310 donkeys, 52 mules. At the slaughter house the meat seized by the inspectors represented in weight 204,209 kilogrammes and was condemned from animals found to be suffering with glanders, hydrohæmia or other affections.

[WRITTEN SPECIALLY FOR THE AMERICAN VETERINARY REVIEW.]

INTRATRACHEAL MEDICATION IN THE TREATMENT OF PURPURA HAEMORRHAGICA.

BY GEORGE J. GOUBEAUD, D. V. S., BROOKLYN, N. Y.

The writer, in bringing this subject before the readers of the REVIEW, does not do so with any idea of claiming originality in the line of treatment for purpura hæmorrhagica, but with the sole object of advocating a form of treatment the results of which appear to be almost marvelous. He has seen cases which appeared almost hopeless at the beginning of the treatment, and in less than one month's time the animals were able to perform the labors which were imposed upon them. One case in particular appeared to be *in extremis*, and in twenty-nine days he was discharged cured, and from that time to this he has been hauling an express wagon, and has had no recurrence of the disease. Under the old method of treating these cases I must confess that I had poor success. From the time of my graduation up to the time of beginning this form of treatment for cases of purpura hæmorrhagica, I treated ten cases suffering from this disease. Six of these cases I would classify as bad. All of them died. Four recovered. The four that recovered were mild cases, and at no time during treatment did any of them present any symptoms of an alarming nature. Those of the four cases recovered in periods varying from six to nine weeks. The fourth case I treated for four days, when the owner decided to do nothing for him, thinking him not worth the expense which would be incurred in treating him. He turned the animal out to get along as best he could. He received absolutely no treatment after the owner practically abandoned him, but recovered in ten weeks. The agents I employed were turpentine, ergot, digitalis, iron, nux vomica, potassium chlorate, potassium nitrate, potassium iodide, hot fomentations, scarifications, etc. Under the new system I have treated seven cases, six of which were positively cases of purpura hæmorrhagica. One case was doubtful. I should have employed the

expectant form of treatment in the last or doubtful case were not the animal a valuable one, and, fearing that by the time I would have been enabled to make a positive diagnosis the inroads made by the disease would be so severe that the animal would be beyond all human aid and succumb. His symptoms and condition I will describe later on. In describing the treatment and the results, the writer does not attempt to enter into the pathology of the disease, nor into the physiological and therapeutical actions and effects of the agents used. He simply presents the cases and the clinical results of the agents employed as they appeared to him, as clearly and as concisely as possible. Four of these cases had the poorest of hygienic surroundings; four had some previous disease; one had a recurrence of the œdema, but to no alarming degree. Five cases are living; one I lost track of; he was sold to a dealer; one dropped dead four months after he was discharged; I heard of the fact too late to determine the cause of death; his carcass had already been carted to the offal dock and disposed of.

The treatment consists of intratracheal injections of iodine crystals and iodide of potassium and one-half ounce of distilled water, sufficient to dissolve the two chemical compounds. The proportions are :

R Iodine cryst., grs. x.
 Kalii iod., ℥ij.
 Aquæ dist., ʒ ss.

M. et fiat injectio. Sig. One dose for intratracheal use.

I inject this quantity morning and night for three days. Then once a day, gradually decreasing amount of dose till œdema subsides and the petechial spots in the nostrils disappear, the continued use depending upon the severity of the attack and the condition the individual presents to the veterinarian. I also employ strychnine to be given by the mouth in the form of solution, such as

R Strychniæ sulph., grs. ij.
 Aquæ dist., ʒ ij.

M. Sig. ʒ ij on tongue every three or four hours.

The frequency of the dose depends on the condition of the ani-

mal, such as debility, exhaustion, prostration, anorexia, etc. If the strychnine be boiled in water, after which there be added a small amount of alcohol, there need be no fear of a precipitate forming or a deterioration in strength.

A few remarks concerning the mode of administration of the agents employed will be of value to those intending to employ this form of treatment: If the rules be carried out no fear need be entertained as far as bad results are concerned. They will lessen anxiety, time and trouble, and perhaps embarrassment. I use a four-drachm hypodermic syringe or one sufficient to hold one dose of the solution, and employ a large and strong hypodermic needle. It is very essential to have a strong needle. If a small and frail needle be used we will have the unpleasant task of hunting for half of a hypodermic needle in the muscular and tracheal structures. Physiologists tell us that deglutition is impossible unless there is something in the isthmus of the fauces to swallow in order that the act may be begun and completed. The substance entering the isthmus of the fauces stimulates all those normal and physiological contractions. Without that substance entering the isthmus of the fauces the act cannot and will not take place. Personal experimentation will prove this. We can make attempts at swallowing two or three times. Further than this we cannot cause the muscles of deglutition to contract. I do not think they ever gave intratracheal injections of the previously mentioned solution through a small needle. If they did I think they would have had an hour's work dissecting out half of a hypodermic needle. Contractions do occur. I have seen the sterno-hyoideus muscle thrown into a violent spasmodic contraction, which lasted for over a minute. My hypodermic needle, the strongest which I could procure, was bent almost in half during this act. Elevate the head to about one-half of the arm's length and insert the needle in about the centre of the cervical portion of the trachea. At this point the skin and trachea lie one over the other with a small expanse of the sterno-hyoideus muscle between. Feel for the space between the intratracheal rings. Slowly force the

needle through the skin and through the space between the rings for about one inch. Should the first attempt be unsuccessful, do not attempt to force the needle through tracheal cartilage. Raise or lower the point of the needle, use slight pressure, when suddenly the needle will enter the trachea. Now, *very slowly* empty the contents of the syringe into the trachea. While emptying the syringe the animal will continue the attempt to swallow. If it make rapid attempts at swallowing you will know that the fluid is entering the lungs too rapidly. Coughing and sneezing will result and the fluid will be thrown up into the mouth and nose. It is advisable while giving the injection to have the animal chew some hay. It attracts its attention and lessens the tendency to cough. The head should continue to be elevated for about five minutes. On account of the corrosive action of iodine, the syringe and needle should be immediately washed after use. The following is the report of the cases as they progressed, with the history of each case:

Case No. I.—Bay gelding, eight years old, in poor condition, weight 1200 pounds; had recently recovered from an attack of pneumonia; used in an express wagon. Sanitary conditions bad. The animal appeared to be sick for about a week previously; legs œdematous; no appetite; sero-mucous discharge from both nostrils, tinged with blood. The animal was unable to perform the labors which were imposed upon him. A veterinarian was called, who pronounced it a case of glanders. I saw the patient on the seventh day after the owner first noticed that his horse was sick. When first seen it presented all the typical and characteristic symptoms of purpura hæmorrhagica. I might also add that he presented a pitiable sight, being unable to move; legs swollen to such a degree that the skin cracked, through which oozed a bloody serum. The sternum and abdomen were extremely œdematous, as was also the left side of the cheek and nose. He was breathing through the right nostril. Prostration extreme; temperature 105° ; pulse 90, weak and small; respiration 30, short and quick. From the

nostrils there issued drop by drop a sero-sanguineous fluid and occasionally a small amount of dark-colored mucus. Mucous membrane on both sides of the nasal septum was covered by a conglomerate mass of petechial spots from which there appeared to ooze a sero-sanguineous fluid. Mucous membrane very dark colored. The drinking water was taken from a well fifteen feet from the manure pit and outhouse. Diagnosis: purpura hæmorrhagica; prognosis bad, and I so advised the owner.

Previous to seeing this case I had read in the REVIEW an account of the iodine treatment and its success, so I therefore determined to give it a trial, which I did, with the happiest results.

First day.—At 5 o'clock in the evening I gave the first injection, to be followed by one-fourth of a grain of strychnine hypodermically.

Second day.—General condition the same; at 9 A. M., temperature 104° , pulse 80, respiration 30. 6 P. M., temperature $104\frac{3}{5}^{\circ}$, pulse 90, respiration 28. Gave injection morning and night; ordered strychnine, $\frac{1}{4}$ gr., every three hours, to be given by the mouth. No change in the animal.

Third day.—7 A. M., temperature 103° , pulse 70, respiration 30. Respirations deeper and longer, pulse strong and regular, slight decrease in size of swellings; urinating every two hours, quantity large and dark colored; œdema on the side of the cheek and nose has disappeared. Ate about two quarts of oats. Gave injection 7 P. M. Condition about the same as morning. Gave injection 10 A. M.

Fourth day.—A perceptible decrease in size of all the swellings; temperature 101° , pulse 60, respiration 24. Appetite improved; pulse strong and regular; general condition and appearance much better; petechial spots disappearing; cough is present, accompanied by a muco-purulent discharge, dark colored; distinct mucous râles over region of trachea and larger bronchi. Injections night and morning still continued.

Fifth day.—9 A. M., œdema has almost entirely disappeared; temperature 104° , respiration 50, pulse 90, weak and irregular;

mucous membrane of rectum protruding through the anus, œdematous and congested-looking. Animal appears distressed; colicky symptoms; ordered enemas of hot water and turpentine every fifteen minutes. Gave injections of iodine and strychnine. At 1 P. M. was notified animal had colic. Found him straining violently; he could neither urinate nor defecate; gave rectal injection of hot water and turpentine every five minutes; hypodermic injection of morphia sulph., 1 gr.; intratracheal injection of iodine solution. 9 P. M., animal greatly improved; temperature 101° , pulse 60, respiration 20. Defecation and urination normal; right front leg very œdematous and also left external lumbar region. Gave intratracheal injection of iodine solution.

Sixth day.—Temperature 100° , pulse 60, respiration 24. General appearance better, no visible œdema except at the ankles; body covered with a rash; hair falling out in small patches; nasal discharge still present; eating three quarts of oats at each meal. Ordered milk to drink in place of water; gave injection of iodine solution. Did not return at night.

Seventh day.—General appearance same as yesterday; well-developed rash on the body. Gave one-half injection; strychnine still continued.

Eighth day.—Temperature 100° , pulse 52, strong and regular; respiration 21. Appears bright, is able to move without fear of falling. Gave half injection of iodine solution.

Ninth day.—General appearance normal, slight cough, accompanied by discharge, which is dark colored. Temperature, respiration and pulse normal. No injection; continued strychnine till fifteenth day, then stopped all medication and on the 28th day he was put to work. His recovery was rapid; he gained in flesh and strength surprisingly, and at the end of two months after being taken sick his spirits and ambition came back, and to-day he is a larger and a better horse than he was previous to developing the attack. This was a bad case.

Case No. II.—Black gelding, six years old, weight 1000 pounds, used as a coupé horse; hygienic surroundings bad. Two weeks previous had suffered from a bad attack of influenza.

All symptoms of purpura hæmorrhagica well developed; temperature 102° , respiration 20, long and deep; pulse 80, weak and irregular. Gave injection morning and night; strychnine by mouth every four hours.

Second day.—General condition about same as previous day slight cough, followed by muco-purulent discharge of dark color; mucous râles over trachea and larger bronchi. Gave injection. At 7 P. M. only change seemed to be in appearance of œdema, which was more extensive; both hind legs met; unable to move.

Third day.—General appearance better; œdema decreased in size; urinating about every two hours, quantity large and dark colored; pulse 70, strong and regular; temperature 104° , respiration 36. A drizzly rain fell all day. Evening, about same as morning; refused to eat. Gave injection.

Fourth day.—Temperature 101° , pulse 66, strong and full; respiration 30, full and deep; severe cough; appetite better. Gave injection. Evening, about same as morning. Gave half injection.

Fifth day.—General appearance much better; temperature 102° , pulse 60, strong, full and regular; respiration 30, strong and deep; cough, followed by discharge, which is dark colored. Gave half injection.

Sixth day.—General appearance greatly improved; œdema of abdomen, sternum and extremities decreased to one-half size; other symptoms same as previous day. Gave one-half injection.

Seventh day.—General appearance much better; no œdema of abdomen; limbs have almost returned to their normal size; temperature 100° , respiration 20, pulse 52; appetite normal; hair beginning to fall out; a rash covers the body; urinating frequently. Gave half injection; continued strychnine.

Eighth day.—General condition same as yesterday; no visible œdema; petechial spots still present on nasal septum; I should judge about 25 on each side. The spaces between the spots appeared to possess a healthy color; on fourteenth day had all disappeared. Gave half injection.

Ninth day.—General appearance and condition was such that I discontinued injections, but gave strychnine every four hours till sixteenth day, when all medication was stopped.

On twenty-second day he was put to work and has been well ever since. This case I would consider a mild one.

Case No. III.—Brown mare, aged, used in heavy truck. Owner stated that she had suffered from a bad attack of colic two weeks previous, followed by a bad attack of diarrhoea, which lasted five days, during which she ate absolutely nothing. On twelfth day after she had colic, owner found lip swollen. On thirteenth day, abdomen œdematous. On fourteenth day, owner found her suffering from severe attack of epistaxis. The animal when seen presented the appearance and symptoms of a well-developed case of purpura. At no time did she present any symptom of an alarming nature, aside from the sudden appearance of œdema, which was as severe as on second day of my beginning treatment. It occurred on tenth day, two days after I had discontinued injections. They were resumed for four days and then discontinued. From the eighth to tenth day it had rained continuously. Strychnine was continued till sixteenth day, after which no medication was given. On the twenty-sixth day she was put to work. The owner informs me that she has increased in weight and has also become very lazy. The hygienic surroundings were about as bad as could be. This case was a mild one.

First day.—Animal presented appearances of mild case of purpura hæmorrhagica; all symptoms well developed; temperature 103° , respiration 18, pulse 80, weak and irregular, missing from two to four beats per minute. Gave injection night and morning; strychnine by mouth, $\frac{1}{4}$ gr. every four hours.

Second day.—Condition about same as previous day; temperature 100° , respiration 18, pulse 80 and irregular; slight cough, accompanied by muco-purulent discharge, dark colored; mucous râles over trachea; no appetite. The cough discharge and râles remained for about three weeks, after which they disappeared.

Third day.—Animal slightly improved, appears much better and livelier; œdema about one-half size; eating three quarts of oats at each meal. Gave injection morning and night.

Fourth day.—About same as previous day; no perceptible change. Gave injection in morning.

Fifth day.—Animal making good recovery; no œdema; petechial spots disappearing; in fact, had almost disappeared on eighth day and reappeared on tenth day, disappearing entirely on eighteenth day. Gave injection.

Sixth day.—Same as preceding day. Gave one-half injection.

Seventh, eighth and ninth days.—Animal making good recovery, convalescing quickly; able to leave stall; walks with staggering gait. No injection.

Tenth day.—œdema has reappeared to about same size as at beginning of treatment; petechial spots reappeared; no appetite; temperature 104° , respiration 30, pulse 60. It had rained almost continuously for two days and is still raining. It may be well to state here that during treatment whenever the weather was disagreeable the condition of the patient almost invariably became aggravated. Gave full injection morning and night.

Eleventh day.—Temperature 100° , pulse 52, respiration 18; œdema one-half size. Weather clear. Gave one-half injection. His condition gradually became better every day. Injections were discontinued on fourteenth day; strychnine discontinued on eighteenth day; œdema disappeared entirely on sixteenth day. Discharged cured on twenty-second day, and on twenty-sixth day was put to work.

Case No. IV.—Gray gelding, used in coal cart, 12 years old, weight 1100 lbs.; had no previous disease; poor sanitary surroundings; an abundance of bad usage, poor feed and poor care. He had œdematous limbs for four days previous to my seeing him; a mucous discharge from both nostrils, tinged with blood; owner thought he had glanders. The owner thinking that he was not worth the expense which would be incurred in treatment, wished to have him destroyed. I prevailed upon

him to allow me to treat him, to which he reluctantly consented. Three weeks after I discharged him. He was sold to a dealer. I then lost track of him. This was an extreme case and I am positive that had I treated him under the old system which I usually employed he would have succumbed. He received no medication other than that which I gave myself, for the groom was too busy emptying the contents of what was at one time a respectable-looking pitcher. The animal's temperature varied from 103 to 106° for six days; ate and drank very little; prostration extreme; confined in a foul-smelling stall, surrounded by dirt and filth; in short surrounded by every agent conducive to disease. This animal presented an extreme case; I have never seen one as bad. He received in conjunction with iodine intratracheally, strychnine hypodermically. Both injections were given twice a day for twelve days. His recovery was slow, his general condition on some days good, on other days bad, until the ninth day, when he began to improve slowly, until the day he was sold, which was on the 27th day, after which I lost track of him, I could not induce the dealer to tell me what he had done with him. This was the only case I treated in which the œdema continued to shift after the iodine injections were employed. On account of the shifting character of the œdema I was tempted more than once to perform tracheotomy as a precaution, fearing laryngeal involvement.

Case No. V.—Bay mare, seven years old, used in butcher's wagon. Had had influenza one month previous to development of attack of purpura hæmorrhagica. Appetite good; in fair condition. This case was the most interesting one I ever saw on account of the peculiarity of the œdema and its shifting character. The œdema practically ceased to change its location after treatment was begun. When first seen she was stiff and refused to walk. When compelled to walk the front feet would barely leave the ground and at every step she emitted a grunt. A very slight œdema on the lower half of sternum; very hard, did not pit on pressure except at the edges; temperature $100\frac{2}{5}^{\circ}$, pulse 60, respiration 14. Suspected deep abscess;

ordered hot fomentations and a dose of physic. Tumor gradually increased in size till fifth day; was very large, pitted on pressure, quite soft and fluctuating; temperature 104° , pulse 60; was able to walk with comparative ease, no grunting. The tumor was lanced in several places; no pus escaped, but serum escaped continuously.

On the sixth day tumor had disappeared almost entirely. Owner stated that it had all run out. Could walk and trot without difficulty; all functions of body apparently normal. Did not see animal again for three days. Owner called me to see the animal because of a very severe œdema over left eye; he thought she had been stalled. Upon examination found a severe œdema over left orbital region, well defined, about size of a child's head; hard, painful and immovable; eyelids everted, mucous membrane dark red and œdematous. The skin over the orbital process was denuded of hair and over this spot serum flowed freely. On account of the severity of the œdema I was unable to examine the eye itself; ordered hot fomentations. On the next day the œdema had disappeared to about one-half its original size, so I was enabled to examine the eye itself. The sclerotic coat was a perfect chocolate color. This color reappeared after the disease had been well developed; it lasted for about twenty-four hours and then disappeared. Not having seen nor heard of this peculiarity before, I did not suspect the real cause. I did not see the animal again for three days; owner informed me that she had again become stalled and injured her left hind hip. The muscles of the gluteal region were hard, painful and very sensitive; animal was quite stiff and walked to one side. I suspected that a rheumatic affection was the cause of this condition. Next day swelling had shifted to lumbar region; temperature, pulse and respiration slightly above normal; appetite normal; ate four quarts of oats at a meal. Next day, or fourteenth day after she was first seen, her body was covered with a number of small tumors, varying in size from that of a hickory nut to an average sized peach; they seemed to be imbedded in the muscular structures—hard, painful and immovable. There were none on

the legs, armpits or thighs ; no enlargement of the sub-maxillary glands ; mucous membrane of nasal septum, dark and leaden color ; temperature 102° , respiration 16, pulse 60. Treatment, expectant. As sedative to owner gave analine, grs. xx ; aquæ, $\bar{3}$ ij. Two drachms every three hours.

Fifteenth day.—Medication very powerful, all tumors having disappeared, but they seemed to coalesce and form one large one, occupying the occipital and the superior cervical regions. The shifting character of the tumors continued for four days. The temperature varied from 99° to 103° , pulse at times as high as 80° . At no time did I detect petechial spots in nostrils or was there any discharge, for I suspected something far more serious than rheumatism. I examined the nostrils and Schneiderian mucous membrane thoroughly every day. On the twenty-first day after I had first seen the animal, the true character of the disease was detected. Both patellar regions became involved ; the œdema terminated abruptly in the upper third of the tibia ; both knees œdematous. I now suspected purpura hæmorrhagica and on next day all the symptoms of the disease were well developed. Active treatment was begun on the twenty-third day. The orbital region became involved again, but disappeared on the twenty-fourth, and did not appear again.

Active treatment was employed for twelve days and at the end of nineteen days after active treatment was begun she was discharged as cured. She gradually recovered strength and spirits, so that she was enabled to leave her stall and roam through the fields in search of clover, of which she was very fond. On the second week after she was discharged, the owner informed me that he would put her to work. She was sufficiently able to lie down and roll over several times in rapid succession ; was gaining flesh rapidly, eating everything that was offered to her. The owner thought that her condition was such that light work would be beneficial. She did not lie down in the stall since she was first taken sick. She was found lying on Saturday morning ; the owner left orders that she be not

disturbed. He left on a business trip, and did not return till the following Monday; she was still down, and totally unable to rise. On account of her extremely exhausted condition and her positive inability to stand, even when placed in slings, I ordered her to be destroyed. Post-mortem examination revealed an incomplete fracture of the ischio-pubic symphysis. Careful questioning failed to elicit any information as to how the accident occurred.

This case presented to me many interesting features. First, the character of the swellings previous to their being localized in the extremities—always hard, unyielding, painful on pressure, apparently deeply situated, the shifting character, which was always sudden, unaccompanied by any external manifestation from the animal. In three hours time they would disappear, to reappear in some other locality; the absence of any positive symptoms until the twenty-second day after she was first seen; the almost sudden appearance of all the typical and characteristic symptoms of the disease; the appearance of the small tumors on the body and neck, and not on the extremities; they were principally on the trunk, imbedded in the superficial layers of muscular structures; the character of the swellings after treatment was begun; their gradual disappearance. On the sixth day the œdema reappeared, and disappeared on the tenth day, after which there was no recurrence. It had rained continuously all day; temperature ran up to 106° , pulse 110, respiration 50. The discoloration of the sclerotic coat of the eye was new to me; I had not seen a case before nor since. The enlarged orbital region, with no other appreciable symptoms; the slow course which the disease took before any symptoms were detected whereby I was enabled to make a positive diagnosis; the absence of any positive symptoms until the disease had existed for more than three weeks; the slow course which the disease assumed before treatment; the rapid recovery after active treatment had begun; the abnormal amount of urine which the animal passed after active treatment was begun; its gradual decrease after treatment was discontinued; and, lastly,

careful and guarded questioning failed to explain any reasonable cause for the accident to the pelvis. This case I would class as bad.

Case No. VI.—Bay gelding, nine years old, truck horse, weight 1400 lbs.; had no previous disease. Hygienic surroundings poor; had been ailing for a week. When seen he presented the typical appearance of a well-developed case of purpura hæmorrhagica, but in a mild form. The course of the disease presented nothing interesting; recovery was rapid. The injections were discontinued on the seventh day; strychnine was discontinued on the seventeenth day, after which he received no other medication. On the twenty-third day he was put to work, at which he continued until the end of the fourth month, when, while driving along the street, he stumbled and fell dead. The swelling disappeared entirely on the eighth day. On the tenth day there were no petechial spots; his temperature never exceeded 103° , pulse always strong and never above 60, respirations always normal. This was a mild case. In fact, one of those cases which would have recovered by careful nursing, a change of surroundings, and strong nerve stimulation.

Case No. VII.—Gray gelding, five years old, weight 850 lbs., a road horse. Had an attack of catarrhal fever one month previous. This case I consider doubtful. I will describe the symptoms as they presented themselves to me: Legs swollen to almost twice their normal size. The œdema gradually decreased till the regions of the elbow and patellar articulations were reached, when it slowly decreased and lost itself in the muscular structures of the aforesaid regions; prepuce and scrotum œdematous, an extensive œdema of the abdomen; temperature $100\frac{2}{5}^{\circ}$, respirations 12, pulse 52, strong and full; Schneiderian mucous membrane dull and of a leaden color. On the inner angle of the left nostril there appeared a small dark red pimple, about the size of a pin's head, surrounded by a dark zone, which gradually shaded to the color of the mucous membrane. This spot disappeared twelve hours afterwards. On the fifth day the color of the membrane began to change,

and on the tenth day it appeared normal in color. Although well groomed, the hair of the animal was rough and dirty looking, always standing up. Urine normal in amount, but high colored. Manure soft and yellow looking, covered with shreds of mucus. Tongue coated and having an unpleasant odor. Appears bright, walks without difficulty, trots stiffly; is easily fatigued. Diagnosis, probably purpura. Treatment, a dose of physic. Third day, the physic acted very strongly; œdema about half the size; the spot in the nostril had disappeared. Fifth day, œdema still present; ordered one hour's exercise, after which the swellings had disappeared almost entirely. Sixth day, the œdema had returned to a severe degree; it was much worse than when first seen. As this animal was a very valuable one—at least, the owner thought so—and fearing that before I would be able to make a positive diagnosis of purpura, if such it were, the inroads made by the disease would be so severe that the animal would succumb, I did not employ the expectant treatment, for the reason which I have just stated. I gave the injection twice a day for four days, once a day for four days. On the eighteenth day he was discharged cured. I do not say that this was a case of purpura, I say that it was very suspicious.

To those intending to use this form of treatment, I will say that they need not have any fear of bad results, due to the fluid entering the pulmonary structures. The treatment at first thought seems to be heroic, and I have no doubt but that it is a very powerful method of giving the iodine. The foregoing observations are the result of my personal experience, as clearly and as concisely as I can put them, and should they benefit any member of the profession I will be amply repaid for the trouble which has been incurred in the writing of this article.

At the December meeting of the Veterinary Medical Association of New York County, Dr. Goubeaud, author of the above paper, will read an important communication on a new method of employing charcoal for the relief of gastric tympany. January REVIEW will contain it.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

BEE-STING DEATH.

By C. H. PEABODY, D. V. S., Charlton City, Mass.

On September 7th, about 2 P. M., a horse, about twelve years old, 15 hands high, weighing about 1200 pounds, in good condition, was attacked by bees and severely stung for about twenty minutes before he was gotten away from them. The horse had been at farm work every day and was to all appearances well.

At 2.25 the horse was gotten to the barn. At that time did not appear to be in much pain. The head, face, neck, lips, ears, around the eyes, over the body, inside the legs and under the abdomen were filled, as one might say, full of bee-stings. The parts were washed with strong ammonia water. The animal at this time stood quite still, but in about ten minutes he began to shake his head and his respiration began to increase. I at this time took his pulse, and they were fifty. At 2.45 the pulse was sixty, respiration thirty, and temperature 102° . The animal would stretch and urinate every three minutes, it being of a dark brown color, having a distinct odor of the poison of the bee. The breath at this time also had the peculiar odor of the poison. There was frequent evacuation of the bowels, and after a few times it became thin and watery, with severe and hard straining.

At 3 P. M. the above-described symptoms had increased in a marked degree. The pulse was 80, respirations 60, temperature 104° , with marked symptoms of delirium. He would throw himself on the bedding, then up and tug at the ropes, plunge and whinny in a loud, shrill voice. These symptoms lasted until 4.15 P. M., when they began to abate and the respiration began to be somewhat stertorous. He began to show symptoms of paralysis of the extremities.

At 6 P. M. he was unable to get up. The pulse had decreased to 60, respiration to 40, but the temperature was 105° , with stertorous breathing more marked. These conditions continued in a more marked degree until 9.30, when he died, about seven hours after he was stung.

Made an autopsy at 8 A. M., ten hours after death, and the following lesions were found:

The head, neck, body and extremities were swollen, the penis protruding and swollen to more than three times its natural size, the tongue protruding and swollen, the buccal cavity congested. In making an incision through the skin, a peculiar foetid odor came from it. The muscular tissues were congested, the cellular tissues were inflated with a yellowish gelatinous fluid, the lungs were infiltrated and engorged with blood; the muscular tissues of the heart were soft and flabby, the cavities filled with blood clots of a dark tarry consistency, and the aorta contained the same. The mucous membrane of the trachea and air passages were congested, and in places there were petechial spots. The external appearance of the stomach and intestines was of a dark reddish color, and there was, I should judge, almost a gallon of a yellowish fluid in the abdominal cavity. The liver looked normal, but it would tear and break down very easily. The kidneys looked whitish externally, the bladder being contracted. The mucous membrane of the stomach was congested and the contents quite fluid. The intestines were congested and marked with petechial spots all through them. Pyer's patches were inflamed and thickened. The cavities of the kidneys were congested, as were the mucous membranes of the bladder and urethra.

There was a peculiar odor about the cadaver, and the post-mortem appearances reminded me of a case I had a few years ago that was poisoned by the administration of cantharides.

It is claimed by scientists that the poison of the bee is formic acid, but the symptoms in this horse were almost like one poisoned with cantharides.

Wishing to become more familiar with bee-stings, I procured an animal and a swarm of bees and let them become acquainted.

On September 12th at 2 P. M. the symptoms were about the same in about the same ratio, up to the time of the commencement of the stertorous breathing, when I began to administer the officinal solution of potassa in one-ounce doses every half hour; also hypodermically, three-grain doses of sulphate of morphine. I gave the solution of potassa in linseed gruel, one and a half pints of whiskey. The first dose was given at 5.30 P. M. At 6, no marked change, when another dose was given. At 6.30 the temperature, which had been $104\frac{3}{5}^{\circ}$, came down to 104° , the pulse from 60 to 48, and the respiration from 40 to 28. At 7 P. M. she got up without assistance. The stertorous breathing had somewhat subsided at this time. Gave another dose of the mixture, also another injection of morphine. The straining

to evacuate the bowels had become less frequent, the attempts to urinate ceased, and the animal stood with head down, lips somewhat swollen, eyes closed, and tongue lolled out. Respiration, temperature and pulse same as at 6.30. At 7.30 P. M., same symptoms. Did not administer any medicine. 8 P. M., some straining. Gave more morphine and some whiskey, *no potassa*. 9 P. M., no straining, no pain, no medicine. 9.30 P. M., pulse 40, respiration 20, temperature $103\frac{3}{5}^{\circ}$ —the same time that the other horse without any treatment died. The animal continued to improve. I saw her until 1 A. M., when she was placed in a box stall. I saw her again at 5.30. She stood with head down, lips swollen. At 9 A. M. the pulse was 40, respiration 20, temperature 102° . Was given mucilaginous drink, cooked oats, green grass. Did not move around much during the day. The urine was quite dark in color, did not void any faecal matter at all; foetor of the breath was not so well marked. At 5 P. M., she drank four quarts of water, ate a pint of oatmeal and a little grass. Left her for the night—pulse 40, respiration 18, temperature 101° . The next morning at 9.30 I saw her. Swelling had gone down about head and lips, looked bright, ate and drank fairly well; was turned out in the lot and has improved every day until now. She appears well with the exception of a few ulcers on lips and nose.

Now, the questions that arise in my mind are: "Do bee stings in large quantities act like cantharides poisoning, or does some chemical change occur that paralyzes the nerve centres after the irritating action has passed off? Did the potassa have anything to do with counter-acting the action of the poison, or did the morphine stop the nervous irritation, if such existed, or did the whiskey stimulate enough to bridge over the critical point, or was not the old worn-out horse as susceptible to the action of the poison as a strong healthy one?"

THE VETERINARIAN AND THE CAT.

By FRANCIS ABELE, V. S., Quincy, Mass.

Was asked to see a black gelded cat, 9 years old, that had bitten a man in the calf from no provocation whatever. Just previously it had bitten the man's housekeeper in the arm.

Cat was in the cellar. I marched down with a saucer of milk, to see her try to drink. She mewed, straightened her tail as if glad to see me and I proceeded past her on the cellar steps. I had just reached the cellar floor and was putting the milk down when she sprang at my calf and fastened her teeth and

claws in full length. I caught her tail and scruff of neck to remove her, but she refused to let go either hold, so I knelt down, placing my right knee on her back and strangled her with my hand. Once I drew my revolver but I dared not fire against the cement cellar floor at that angle and so close range. I saw her eyes protruding; not a gasp had passed her since I got my clutch. It seemed full five minutes before I could recognize her end. Her teeth were so firmly locked in my leg that I had to tear the flesh, in withdrawing the cat. The fang prints were $\frac{3}{4}$ inches apart; the spread of jaw was two inches, taking the bite along the axis of the leg.

Was she rabid? I don't know. The owner is quite anxious. His wounds were cauterized, so were mine. He worries about it. I don't, for outside of the savage tendency I could learn of no symptoms of rabies.

The cat had been more or less cranky for some time; when women passed her she would box at their skirts. If petted more than she wanted, would spit and scratch. In my opinion it was a development of that crankiness.

The cat was taken to Dr. Frothingham, of Harvard University, to make a cultivation from, on some rabbits. We'll know more possibly after that.

Later Developments.—Rabbits both became rabid inside two weeks. Man has gone to Pasteur Institute. Over a month has now elapsed since bite.

EXTRACTS FROM EXCHANGES.

FRENCH REVIEW.

DYSTOKIA IN A COW—CÆSARIAN OPERATION—RECOVERY [*By Mr. Derain*].—As the author says, this operation is not common in veterinary obstetrics, though a few cases are recorded in operations on some animals. His case is unusually interesting. The cow, about 14 or 15 months old, had been suffering with labor pains since morning, and when Mr. D. was called he found that the size of the animal and the presentation of the enormous foetus, rendered impracticable all thoughts of embryotomy, and the Cæsarian operation was perhaps the only way to save the mother. The operation was performed at night by acetylene lamp light, with as much antiseptic measures as possible, the foetus extracted alive, the uterus cleaned and the wound closed with sutures and dressing of iodoform. The

operation lasted two hours. The foetus lived 5 days and died from pneumonia. The cow recovered.—(*Journ. of Zootech.*)

PROLAPSUS RECTI IN A COLT—ANDRÉ'S SUTURE—RAPID RECOVERY [*By Mr. A. Labat*].—The suture of André is simple—it makes an artificial sphincter. It is made with a needle carrying a single or double strong thread, which is introduced on the upper part of the anus, below the tail, at one centimeter from the anal opening; a suture is made, "stitch forward of stitch, all round the anus," and stopped when reaching about one centimeter from the starting point. In this way the anus is surrounded by a ligature like that of a purse; it can be closed at will, and according to indications, to permit the passage of fæces or prevent prolapsus of the rectum. This suture was applied by the author on a six-weeks old colt, which for a week had a prolapsus, which, though reduced several times, had become complete and the rectum was prolapsed in its entirety. The reduction was difficult and demanded great care. The André suture was applied, a hand being kept in the rectum during the operation, and tightened in such a way that the small finger could enter the anus. The animal strained but very little after being allowed to rise. He received laxatives for a couple of days. Four days later the suture was removed and the colt entirely recovered, being discharged four days after.—(*Rev. Veterin.*)

PROLAPSUS RECTI—GANGRENE—RECOVERY [*By Mr. A. Labat*].—A 10-year-old mule had a prolapsus of several days' standing which was irreducible. It formed a tumor made by the displaced rectum; the tumor was globular in shape, slightly contracted in its middle and measured twenty centimeters in length and in width. It was hard, painless, almost cold. Its surface covered with sanious sores, and several gangrenous patches of a very foetid odor. After minute washing with an emulsion of crisyl, 10 per cent., and removal of some gangrenous eschars, reduction was attempted, but failed. This condition remained for three days, same cleaning, same attempts and failures to reduce, no change. On the fourth day, the aspect was somewhat modified; the raised mucous membrane presented several lumps, as big as an egg, which were formed by the rectal folds. The whole surface was again thoroughly cleaned, these projecting lumps excised with the ecraseur and the rectal tumor reduced by more than half was then easily reduced. One arm in the rectum prevented a return of the trouble, and, after straining severely for a short while, the

animal became quiet. The after treatment consisted in embrocation of boricated vaseline in the rectum. Three days after the operation the mule passed her fæces herself, and from that began to improve in condition. Her recovery was complete on the tenth day.—(*Rev. Veterin.*)

DYSTOKIA BY EXCESS OF VOLUME OF THE CALF COMPLICATED BY EMPHYSEMA OR BY CYSTS [*By H. A. Morel*].—The five observations recorded by the author are very interesting and the conclusions essential to the veterinary obstetricians. In one case it was a calf of large size, with extensive hypertrophy of the skin and of the subcutaneous cellular tissue and having cervical cysts; in another the calf was monstrous in size; in three others, besides the large development of the animal, there was general emphysema. In four of the cases the operation of embryotomy had to be performed; complete in three of them, part of the foetus (the head) had to be left in the other. Of these four, the one in which the embryotomy was incomplete recovered, but remained very delicate; two died; one only got well. The Cæsarian operation was performed on the fifth animal, who died also. Mr. Morel says: "As soon as the diagnosis is made, advise the slaughtering of the animal rather than to attempt the extraction of the calf. Forced extraction always failed. Embryotomy is always long, painful and its success is not always certain. The only rational indication is the Cæsarian operation."—(*Rec. de Med. Vet.*)

BIBLIOGRAPHY.

PROCEEDINGS OF THE UNITED STATES VETERINARY MEDICAL ASSOCIATION, SESSION 1898. Edited by the Publication Committee, W. L. Williams, Chairman. Ithaca, N. Y. : Printed for the Association.

Promptly at the announced date, the neat volume containing the proceedings of the thirty-fifth annual meeting was delivered at the post-office for transmissal to the members, the one addressed to the Editor of the REVIEW arriving on November 1. In some respects the present edition is superior to any of its predecessors, while otherwise it is of equal merit. For the first time the entire edition is bound in cloth, as it should be, for surely it is of sufficient importance to a veterinary library to entitle it to a permanent position upon the shelf, and as a contribution to professional literature it will form a valuable reference work for many years.

While fewer pages are occupied, the text has been more care-

fully edited, and much that in former volumes was simply of local interest, has been eliminated; nothing has been lost by this pruning, but much saved in time to the reader and cost to the association.

It contains a table of contents, including the deliberations of the United States Experiment Station Veterinary Association and the Association of Veterinary Faculties of North America, list of officers and committees for 1897-8, resident State Secretaries, officers and committees for 1898-99, list of honorary and regular members; minutes of the proceedings, including the President's admirable address (published in the October REVIEW), list of new members, the important discussion upon meat inspection, and the papers presented by the various essayists, viz., "Acute Indigestion in the Horse," Roscoe R. Bell; "State Control of Hog Cholera," M. H. Reynolds; "Wild and Cattle Diseases," H. D. Fenimore; "Points of Value in a Country Practice," S. S. Whitbeck; "Army Veterinary Service," Corcoran and Treacy; "Arytenoideraphy," L. A. Merillat; "The Practicability of Immunizing Breeding Cattle against Texas Fever by the 'Tick Method,'" J. W. Connaway; "Our Milk Supply," Charles Ellis. Following these pages the minutes and papers presented at the Experiment Station Veterinarians' Meeting and the Faculties are given in full, making in all a very clear and intelligible *résumé* of the convention at Omaha.

CORRESPONDENCE.

PROF. LYMAN EXPLAINS THE "GLOBE" QUOTATION.

HARVARD UNIVERSITY, BOSTON, November 3, 1898.

Professor Roscoe R. Bell, Editor:

MY DEAR DOCTOR:—On page 588 of the November number of the REVIEW I see you have done me the honor to refer to a paper of mine recently read at the opening exercises of this school, in so far as a portion of it was reported in the *Boston Globe*; and that from that report you have inferred that I have stated that the American College did not at first admit students. I have never had the pleasure of seeing the report of my address which was made by the *Globe*, but I have no doubt that you have quoted it correctly; they, however, have misquoted, apparently, this portion of my address. What I did say in this connection was this:

"It was not until 1857 that our first school, the New York

College of Veterinary Surgeons, was chartered. The college was, from the first, under the management of a board of trustees, composed of medical men; and there were two veterinarians upon its teaching staff—one a graduate of Alfort, the other of the London College.

"After a time dissensions arose between the trustees and the professors, which resulted, in 1875, in the establishing by the professors of a new school in New York City, the American Veterinary College.

"For a number of years after this the doors of the New York College remained closed to students. * * * The American Veterinary College, which is the real continuation of the first effort, has, under Professor Liautard, continued the good work, and too much cannot be said in praise of the effort which, commencing amid chaos, continued its exertions, in spite of all obstacles, until it found itself the *alma mater* of the larger portion of American veterinarians."

The whole address is now in the printer's hands, and I hope before many days to have the pleasure of sending you a copy of it; I will do so at any rate as soon as it comes to hand; and when you have received it I shall be exceedingly obliged if you will not only read it, but also criticise it freely in the REVIEW, for I am sure that in this way I shall be able to correct the error which you have already pointed out in the article referred to.

Yours very truly,

CHARLES P. LYMAN.

[NOTE.—Just before going to press the little pamphlet referred to by Prof. Lyman was received, and while his quotations were accepted as being absolutely accurate, we beg to confirm them, and to say that this is but another illustration of the utter unreliability of statements upon professional topics in the secular press.—EDITOR.]

TEXAS FEVER TICKS.

PARIS, October 13, 1898.

Dr. Roscoe R. Bell, New York City:

MY DEAR DOCTOR:—I have received in answer to several applications from one of my friends in America a box containing several ticks, taken from cattle suffering from Texas fever. As I do not know who the kind sender was, you will oblige me by inserting this in your next issue, which is the only way I can thank him for the remembrance. The box and its contents arrived in perfect condition; the ticks were quite dried,

and if he can send me others, I think he had better put in the box some damp moss instead of wadding.

Yours truly,

14 Avenue de l'Opera.

A. LIAUTARD.

SOCIETY MEETINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order on Wednesday, November 2, 1898, at 8.45 P. M., with the President, Dr. Robertson, in the chair. The following members responded to roll-call: Drs. Amling, Ackerman, Bell, J. S. Cattanach, J. S. Cattanach, Jr., Dickson, Ellis, Foy, Gill, Grenside, Hanson, McKellar, O'Shea, Robertson and Ryder (15). The minutes of previous meeting were read and approved.

Report of Board of Censors.—Dr. Gill (Chairman) offered the following report: "Charges have been preferred against Dr. J. S. Lamkin, for violation of Article VII of the Code of Ethics, he having connected himself with a live stock insurance company. On motion of Dr. Bell, seconded by Dr. Cattanach, the Chairman was requested to notify Dr. Lamkin to present himself to the Board of Censors at their next monthly meeting to answer said charges. Carried. [Signed: Drs. Gill (Chairman), Bell, Cattanach, and McKellar.]" Moved and seconded that the report of Board of Censors be accepted and placed on file. Carried.

Judiciary Committee.—Dr. O'Shea (Chairman) stated that although it was a little early for legislative work, the committee had been advised that several bills at variance with our present State veterinary laws were on foot, but that the Judiciary Committee were on the alert to attack them when introduced.

Papers.—Dr. Grenside read a very practical and interesting paper entitled "The Horse's Mouth," as follows:

Under this somewhat ambiguous title I do not purpose discussing the ordinary diseases of the mouth so fully treated of in text-books, but rather wish to direct your attention to this important organ of the horse, and view it to some extent from the practical horseman's standpoint.

It may be asked, why introduce a subject that comes within the province of the practical horseman at a meeting of veterinarians? In reply I may say I think I can show that when the mouth is studied from the standpoint of an organ by which the horse is controlled and

guided, conditions arise which cause the provinces of the practical horseman and veterinarian to overlap, and it would puzzle a constitutional lawyer to strike the dividing line.

While it is not absolutely necessary for a veterinarian to be a practical horseman under all circumstances (though it always is an advantage), conditions arise referable to the mouth in which it is a great assistance in aiding one to explain faults and troubles to our clients to which driving and riding horses are subject, and to suggest means for their relief.

I think we will all agree that there is no point in connection with a horse that contributes so much to the pleasure, comfort and safety of either riding or driving him, as what might be called a responsive mouth, or one which obeys the slightest intimation promptly, from rider or driver of restraint or guidance. A good mouth is to a large extent natural to a horse, so that some horses if properly handled can have their mouths made almost perfect. Such horses as a rule must have their heads so related to one another that they can bend their heads upon their necks with ease. If horses so formed have bad mouths, it is usually the result of irrational handling, unless they happen to be unduly nervous or unintelligent animals.

Horses whose mouths are not good are very subject to soreness occasioned by injury from the bit, and the result of this soreness is manifested in a variety of ways.

In horses driven with curb bits with a stiff mouthpiece, the usual seat of injury is the tissue covering the branches of the lower jaw at the points where the bit presses, which becomes bruised and excoriated, and the bone underlying is sometimes injured, even to the extent of a piece being chipped off. It is extraordinary how common this form of injury is in the city, especially amongst dealers' horses, and is by no means uncommon in a large proportion of other horses driven with curb bits. Jointed or snaffle bits seldom injure the branches of the lower jaw, but sometimes press the cheeks against the anterior molars, and abrade the inner surface of the cheeks, especially if these molars are rough. Of the numerous ill-results of soreness and discomfort in connection with the mouth, I may mention the following faults and troubles noticeable when riding or driving, viz., crossing the jaws, keeping the mouth more or less open, lolling the tongue, slobbering, tossing the head, carrying the head to one side or the other, pulling out in double harness or crowding in, going cornerwise, side-lining, not going into the bit, carrying the head unsteadily, pulling, boring down, balking, rearing, plunging, or rushing when starting off, especially out of the stable, restlessness in standing, breaking or going unsteadily in harness when going within the horse's speed, mixing, hitching or hopping either in front or behind, interfering, and, last, but not least in importance, bridle-lameness. Certainly a number of other causes operate in producing the faults I have enumerated, but the most prolific one in the majority of instances is some discomfort in connection with the mouth.

As a rule, if these troubles are attributed to the mouth by owners or coachman, the teeth are usually assigned as the cause, when in reality a bruise of the jaw occasioned by the bit is the trouble, but the anterior molars are rasped and rerasped, still the source of irritation (the bit) is used day after day, applied to the sore and tender spots.

If one considers for a moment, one can realize the extreme sensitiveness of these sores, and the excruciating pain a horse must suffer when facing the bit in the morning, so that it is not astonishing that some horses hang back when first taken out, and if they are predisposed become balkers. The high-couraged horse, though he may hesitate at first, will, as soon as the part becomes numbed with pressure, or he becomes desperate with the pain he is suffering, begin to pull and show evidence of the discomfort he is suffering in the many ways already described, such as crossing the jaws, going with the mouth open, head to one side, etc.

The irritable, sensitive horse is apt to manifest his pain in a more demonstrative manner, and we may find him going out of the stable with a rush, rear or plunge, and if he continues to do this for a short time it soon becomes a confirmed habit and a very dangerous and disagreeable one. Unfortunately it is by no means an uncommon one and could have been very easily prevented had it been realized that it was due to soreness of the mouth and rational measures adopted. Instead, however, of resting the mouth by keeping the bit out of it, the horse is used day after day and the condition aggravated.

If the excoriated parts heal, the cicatricial tissue filling the breach gives rise to an uneven surface and the healed part remains unduly sensitive, and the pressure of the bit always causes evidence of discomfort. Some refer to the healed part as calloused and lacking in sensitiveness, and so account for some horses having a one-sided mouth, but personally I think it is the healed part that is the sensitive one.

Just here I may remark that I think this is a point that should not be ignored by the veterinarian in examining for soundness, and should at least be pointed out to his client, and its consequences explained; the more so if any injury to the bone has ever taken place, for then a horse can never have a good mouth.

Outside of the discomfort and difficulty of driving a horse with a bad mouth not to say the danger especially in crowded streets, and the unsightliness of carriage, it gives rise to, as in turning the head in and out, etc., a bad mouth is apt to produce irregularity of the gait and impaired control of the legs. What is called "hitching" or hopping, generally of a hind leg, although due to weakness, too heavy a load, driving beyond speed, heavy shoes, etc., is not infrequently due to tenderness or soreness of the mouth, or placing the bit too high in the mouth. There is no such thing as a congenital "hitcher." It is always the result of bad management if allowed to become a habit.

In high couraged horses whose mouths have become permanently injured from the bit, it is a difficult matter to overcome the habit, but if the mouth is allowed to heal thoroughly, the bit placed as low in it as the animal will stand and face it with a moderate degree of firmness and not put his tongue over it, the fault will often be remedied.

The veterinarian needs to be on the alert for seeming lameness from a sore mouth, which is by no means uncommon. A horse will nod his head or hitch on a hind leg as rhythmically as if he were actually lame, and owners and coachmen often jump at the conclusion that such is the case, neglecting to take the precaution to jog a horse in hand, before coming to the conclusion. In fact, it is very difficult to persuade people sometimes that a horse is not lame when he nods or hitches from a sore

mouth. I have known horses to go apparently lame when driven with a certain kind of bit, that would go naturally with another kind, and I have also known horses to go seemingly lame when driven on one side in a pair, that would show nothing irregular when driven on the other side. One is more apt to have an experience of this kind with green horses that are being trained to a curb bit, than with those that are seasoned, unless their mouths have been permanently injured, and those driven in double harness are more apt to show it than those used in single harness.

In standing about show and sale rings one frequently hears horses condemned as being lame when it is due to soreness of the mouth, the tendency to which is increased by going around a small ring.

Mixing is usually attributed to want of balance from a proper distribution of weight in shoeing, and no doubt this is the case in some instances, but I think the cause should be more frequently referred to the mouth. You will generally find a horse that is inclined to mix has an unsteady mouth. He does not take the bit with the necessary firmness and keeps retracting his tongue or putting his tongue over the bit so that the pressure from the bit comes on the branches of the lower jaw, which always give rise to irritability and a want of confidence in the animal's manner of going.

The tendency to mix can usually be overcome by patient and persevering effort to get the tongue accustomed to pressure. The bit should be placed well up in the mouth and be as comfortable a one as possible. Sometimes a bit with a flexible rubber mouth piece or an arched stiff one. Leaving the bit in the mouth in the stable for several hours daily so as to get the tongue used to its pressure and so that it will remain quietly under the bit, apply gradually increasing pressure from day to day by means of a dumb jockey. Sometimes a bit with a port will remedy the trouble at once, but as a rule the former plan is the best. Carelessness in the position in which the bit is placed in the mouth, often results in injury to that organ. It is a point that a driver should exercise as much vigilance about, with almost as much care, as determining whether the reins are buckled to the bit.

The lower the bit is placed in the mouth within certain limits, the better, providing the horse will take it, with a moderate degree of firmness, keep his head steady and his tongue under it. In those horses, however, which do not force the bit steadily, it is usually better to raise it in the mouth and as their mouth becomes firmer lower it.

Among the exciting causes of "interfering," soreness of the mouth is by no means an uncommon one, and I have frequently observed it occurring even in well-broken horses, when a change of bit, particularly to a severe one, had produced some injury to the mouth. Fatigue, bad shoeing, rough and slippery roads, the swaying of a heavy two-wheeler, are all exciting causes of "striking" or "brushing," but I am of the opinion that the awkwardness arising from an imperfectly made (not thoroughly bitted) mouth, with the incidental soreness, is an important factor.

Dr. Grenside's paper was freely discussed, Drs. Bell, J. S. Cattanach and Ackerman, leading in the discussion. At the close of the discussion, motion for a vote of thanks to be ten-

dered to Dr. Grenside for his paper was made by Dr. O'Shea. Seconded and carried.

Dr. E. B. Ackerman then read a paper entitled "Municipal versus State Control of Tuberculosis." * Dr. Ackerman's paper opened a field for discussion, which was led by Dr. Gill, and participated in by Drs. Bell, Hanson and others.

Moved and seconded, that a vote of thanks be extended to Dr. Ackerman. Carried.

Report of Ways and Means Committee.—Dr. Bell (Chairman) reported that he had furnished two excellent papers for the present meeting, as was evidenced by their reading, and had one promised for the December meeting and would secure a second one from among the members. Moved and seconded that the report be accepted. Carried.

Death of Dr. Machan.—Moved and seconded that a committee be appointed to draft resolutions on the death of our late member Dr. Machan, with an amendment that Dr. Robertson be included in that committee. Carried. The president appointed the following committee to act in that capacity: Drs. H. D. Hanson (Chairman), Jas. L. Robertson and J. Elmer Ryder.

New Business.—Dr. Gill raised the question of the U. S. V. M. A. holding its next meeting in New York City. After some discussion, it was regularly moved and seconded that the Secretary be instructed to notify the Chairman of the Executive Committee of the National body, that it was the sense of this meeting, that the U. S. V. M. A. be invited to hold their next annual meeting in New York City. Moved by Dr. Gill that the vote be made unanimous. Seconded. Carried.

Moved by Dr. Hanson, that the Secretary, in conjunction with the Ways and Means Committee, get up a circular letter to enthuse a full attendance at the annual meeting, the yearly announcement of each member's indebtedness to the association to accompany the letter. Seconded. Carried.

Moved and seconded, that the meeting adjourn. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary.*

CHICAGO VETERINARY SOCIETY.

The regular monthly meeting was held November 10th. President Robertson presided, and the following visitors and about twenty members were present: Drs. Boyd, Baldwin,

* Will be published in an early issue of the REVIEW.

Walter Howe and L. Enos Day. Dr. H. D. Paxson, U. of Pa., 1893, was admitted to membership. Owing to disagreeable weather many refrained from attending.

The papers expected from Dr. Joseph Hughes, "Cases Met with in Practice," and "Reports of Cases," by Dr. John F. Ryan, were not presented. Our disappointment was due in both instances to illness of the gentlemen mentioned. Expressions of disappointment and regret were general, as both gentlemen handle their subjects in such a scholarly manner that much is to be gained from their papers. Matters were mended by Dr. L. A. Merillat's response to President Robertson's call for a *résumé* of his paper on the action of eserine, read before the U. S. V. M. A., which brought forth a spirited discussion, including many other topics, of which the following is a synopsis:

Dr. Merillat:—During the past winter Dr. Reading and myself made several experiments on dogs at the McKillip Veterinary College for the purpose of ascertaining the action of eserine. Eserine is an alkaloid and is described as a stimulant of the muscles of the bowels and, in fact, all muscular tissue. Through these experiments, however, we have shown that the action of eserine was purely upon the nerve centres and that instead of being a stimulant to the muscular coat of the bowels it is no more than a depressant to the nerve centres. Eserine depresses or paralyzes the nerves which stop the bowels, the inhibitory nerves, and by doing so rapidly empties them. In experimenting on horses that have paralyzed bowels we found that eserine was not active, but that it will act on the colon when there is marked peristalsis. I may also mention the new treatment for acute indigestion recommended by Professor Bell. Dr. Bell read a paper on acute indigestion at the recent meeting of the U. S. V. M. A. that is probably the best ever written on the subject. His treatment is very simple and consists of the administration of large amounts of dry animal charcoal. It is well known to the chemist that charcoal will absorb about 400 times its volume of gas. Therefore a great amount of charcoal, say eight or ten ounces, is administered dry, and will rapidly absorb any gas in the stomach. Dr. Bell reports great success in cases of acute indigestion by such treatment. He emphasizes the fact that if you wish to get any benefit from this treatment the charcoal must be administered dry, and in combination with sodium bicarbonate. You may combine other treatment, as the administration of the charcoal does not in any way interfere

with other agents used for the same condition. I think it is certainly a treatment that every city practitioner should try.

Dr. Campbell:—It seems to me that as soon as the capsule in which the charcoal is administered gets wet, the charcoal gets wet also, and it would not have the desired effect.

Dr. Merillat:—As charcoal absorbs 400 times its volume of gas, as stated before, one ounce would be enough to have the desired effect if it did not moisten in the stomach, but instead he administers a much larger amount, so that while a portion of it gets moist, the balance remains dry and absorbs the gas.

Dr. Quitman:—Regarding the action of eserine, I am very much pleased to hear of the experiments that Dr. Merillat has made, inasmuch as it bears out my idea from a theoretical standpoint. We know that some drugs have the power of paralyzing the inhibitory without paralyzing the motor nerves. I worked it out in the same way. In regard to its indications and use, I would dislike very much to be without it, as I am usually successful with it. We have to select our cases. To administer it where there is paralysis of the bowels seems useless. Sometimes you get good action even then by giving it in small repeated doses. I get eserine in one and a half grain sealed tubes. It becomes moist on instant exposure, therefore I buy it in one-dose tubes, so as to keep it fresh. The tablets, I think, are worthless, because such a drug cannot be entirely protected from the atmospheric moisture.

Dr. Hawley:—This discussion recalls to my mind a certain case, and it does not bear out the theory of Doctors Merillat or Quitman. In 1891, while I was assistant to Dr. Hughes at the Chicago Veterinary College, a horse, weighing about 1200 pounds, was brought to the college. It was apparently a case of ordinary impaction. I do not remember all of the treatment, but I do remember that he received first a pint of linseed oil, and this was followed by half a pint every four hours for eleven days. Dr. Hughes was at that time very much opposed to my administering eserine, but he finally consented. A grain and a half of eserine was injected hypodermically and we had a violent action of the bowels, presumably one-half bushel of fæces, and the horse finally recovered.

Dr. Merillat:—I think this is a nice case that demonstrates the theory of Dr. Quitman's and myself. Dr. Hughes probably had the horse in a good condition to get the action of eserine. The treatment Dr. Hughes had given previously

was just commencing to take action on the bowels, and the administration of eserine had the desired effect.

Dr. Campbell :—I had a similar case to Dr. Hawley's, but after administering eserine, although it had very violent action, the horse died.

Dr. Quitman :—That recalls to my mind a case I had some time ago. It apparently seemed to be an ordinary case of colic. A colic drench and purgative ball were administered without any good effect. The sounds in the bowels were normal. I repeated the purgative, gave injection of eserine, and there was absolutely no result until the fourteenth day, when the horse passed four pellets. I did not know what else to do, and we came to the conclusion that there was an intestinal obstruction, and I advised the owner to turn the horse out. On the thirty-first day enteritis set in and the horse died. I went out to the country and held a post-mortem and I found a calculus that weighed about one pound and two ounces, round in shape, and the pouch in which it was developing very much thickened. It was located about two feet back of the commencement of the single colon. Another peculiar feature I noticed was that the digesting portion of the stomach was atrophied and looked like parchment. Of course, cases where there is obstruction of the bowels cannot be helped by eserine. I also have a case of lameness that I would like to have some one to help me out on. She is a driving mare, and starts out apparently well and after she is driven five or six miles and is turned around for home she starts to go lame, then suddenly goes sound again. It is in the off front leg. She had been going that way for five or six days when they asked me to examine the animal. I examined the leg in question, taking the owner's word for it, as he is a very good horseman, as to which leg she was lame in. I rode behind the mare and drove her about eight miles and let her stand quite awhile, but could not discern any lameness. I prescribed an ointment of cocaine and morphine, dissolved in oleic acid, and mixed with oleate of mercury and lanolin, but this did not overcome the lameness. I have not seen the mare since, but I know the owner speaks the truth, because he is not a man to jest. Now, I do not know what to make of it. I am handicapped somewhat in not seeing the mare lame. All I noticed when I drove and examined her was what seemed to be a small splint.

Dr. Merillat :—How long had these symptoms been manifested?

Dr. Quitman :—Just about four weeks.

Dr. Hawley :—I would like to ask some questions in regard to neurotomy. How long does an animal usually go sound after being operated upon?

Dr. Quitman :—I know a case that went sound for seven years.

Dr. Campbell :—I know one of six years.

Dr. Allen :—I know one that I operated upon, high operation, ten years ago, and he is sound to-day.

Dr. Merillat :—The length of relief from the operation depends, in my opinion, upon the work that they have to do afterwards. The average in lower plantar operation is two years. High neurectomy for navicular disease is an operation that I would recommend only as a last resort, as the danger is too great, though in many cases it proves successful. Meso-neurotomy is very effectual in tendonitis. In all such cases it gives prompt relief and often completely straightens the tendon. Another operation that is effectual in spavin is posterior tibial neurectomy. It is a sure relief to ringbone, where there is no mechanical obstruction. All these neurectomies require a little courage, but I think we would advance our profession a great deal if they were universally adopted.

Dr. Allen :—I am much in favor of the high operation. In about ten years that I have been in active practice I have performed three or four of the lower and about seventy of the higher operations, and I have yet to lose my first case. As to the posterior tibial neurectomy for ringbone, I always do the high operation with very good results. I know one case that I operated upon that had a large ringbone that at the present time has entirely disappeared, but I cannot see why you should go as far as posterior tibial neurectomy for ringbone if the high operation is just as successful.

Dr. Quitman :—In recent cases I perform the low; in cases of old standing, especially where inflammation sets in, I perform the high operation.

Dr. Merillat :—For all cases of navicular disease we perform the low operation, and if the results are not satisfactory we perform the high. If you can cure it by the low operation it is certainly better, but if you cannot perform the high.

Dr. Hawley :—In absolute navicular arthritis I do not see the sense of performing the high operation.

Dr. E. L. Quitman now related a case of "Calcification of Parotid Gland and Steno's Duct," after which the discussion

was closed and the following papers were announced for the December meeting: Dr. H. W. Hawley, "Lameness on Leading Out;" also "Vices, and their Relation to Soundness." Dr. A. M. Casper, "Temperature and its Relation to Soundness."

JOS. B. CLANCY, *Secretary*.

MISSOURI VALLEY VETERINARY ASSOCIATION.

The seventeenth regular meeting of this association convened in the lecture hall of the Kansas City Veterinary College on the evening of October 5, 1898. President Bennett presided. On roll-call the following members responded: Drs. S. E. Bennett, S. Stewart, J. H. Cock, B. F. Kaupp, J. C. Milnes, R. P. Steddom, S. L. Hunter, R. C. Moore, W. A. Heck and Chas. Saunders. Visiting veterinarians: Drs. H. H. George, J. D. Buckley and about twenty veterinary students.

The customary disposition was made of the minutes of the previous meeting. The report of the Anti-Vivisection Bill was accepted and committee discharged.

Dr. L. M. Klutt's request for associate membership was refused upon the grounds that he had resigned from the association some years since while in arrears for dues; also that the letter-head upon which the request was written contained the cut of a horse's head, which is a violation of the code of ethics of this association.

Circumstances within the past few months have been the means of removing several of our members from our territory. Dr. G. A. Johnson, of Sioux City, Iowa; Dr. R. H. Harrison, of Milwaukee, Wis., and Dr. Nelson S. Mayo, of Storrs, Conn. Each sent in his resignation; the Secretary reported them with clean accounts, and their resignations were accepted, and they were placed upon the honorary list.

The Secretary reported collections improved, but still some delinquents. The usual amount of discussion of this subject was done, and finally instruction was given the Secretary to notify each individual in arrears two years or more that unless his account is settled by the next regular meeting final action will be taken.

Dr. S. L. Hunter read a paper on "Army Practice," which was listened to with much interest. He added another chapter to the very thorough but much needed airing of the condition of the army veterinarian.

Dr. J. C. Milnes responded to the theme "The Reason Why." He described the outbreak of anthrax in two herds of horses.

The origin he thought was in heaps of manure under the barns in each instance. Then followed some spirited but good-natured criticisms of the author's theories, questioning somewhat the diagnosis. In defense the author went carefully over the train of symptoms and post-mortem lesions; he had been in practice since 1878, and had seen much anthrax, and felt justified in making a diagnosis of anthrax. Those who took the negative side of the question went into the bacteriological aspect of the disease and stated that even a microscopical examination will not always substantiate a suspicion.

Dr. B. F. Kaupp read a carefully prepared paper on "Calculi," going into their construction and formation, supplementing his remarks by the exhibition of a fine collection.

Dr. Cook created considerable merriment by relating the story of the Irishman who insisted that calculi are contagious.

Dr. Hunter cited a case where a leather shoe-string was extracted from the bladder of an old man; the patient could not explain how it came there.

Dr. Stewart's paper on "The Advantages of Active Membership in a Veterinary Association" was well received. The author is one of the most capable of our modern veterinarians, and anything from his pen is always first-class.

Dr. Moore reported several cases: *Case No. 1.*—A bull's penis was injured in some unknown manner, not bad at first, but soon grew to be alarming; tissues adjacent swelled and finally sloughing of the parts took place. Patient was ordered destroyed. Some one suggested the cause might be snake-bite. Symptoms of snake bites were thoroughly discussed. *Case No. 2.*—Gangrenous dermatitis in a horse. Had seen several cases in past few years, all of which proved fatal.

One of the interesting features of the meeting was the exhibition of a new thermo-cautery, an invention of one of our own members, which for simplicity and cheapness has no equal. It is so constructed that the operator can hold it all in one hand and pump it while in use. Its cost is not more than five dollars.

By a vote of the association it was agreed to hold the next meeting in St. Joseph, Mo.

W. A. HECK, D. V. M., *Secretary.*

TENNESSEE VETERINARY MEDICAL ASSOCIATION.

The third annual meeting was held in Chattanooga, Monday, October 24, 1898. The President, Dr. Jos. M. Good, occupied the chair, and in his introductory remarks touched briefly on

several subjects of importance to the veterinarians of the State and showed that matters pertaining to the veterinary profession in Tennessee were slowly taking on a brighter aspect.

On roll-call the following members answered to their names : Drs. Jos. E. Good, H. D. Fenimore, J. W. Scheibler, T. W. Scott, G. B. Blackman, W. C. Rayen, G. R. White and Jos. Plaskett. The attendance, considering the limited number of qualified men in the State, was very gratifying, and showed that the members take an active interest in the association.

The Committee on Legislation presented a report stating that at the coming meeting of the State Legislature a powerful effort would be made to obtain the passage of a bill regulating the practice of veterinary medicine and surgery in the State of Tennessee. This bill will be along the lines of those adopted in the Eastern States requiring practitioners to register, and compelling new comers to pass the examination of a State examining board appointed by the Governor from members of the Tenn. V. M. A. ; non-graduates who have been practising for five consecutive years in the State will be allowed the privilege of registering and continuing their practice. The report was adopted.

The Committee on Resolutions presented a report deploring the fact that the cities of Memphis, Chattanooga and Knoxville have no system of meat and milk inspection under the direction of a qualified veterinarian and pointing out the dangers which threaten the lives of their citizens from allowing such a condition of affairs to exist. Allusion was also made to the deplorable status of the veterinary profession in the United States army, and it was resolved that the Tenn. V. M. A. do earnestly co-operate with the Legislative Committee of the American V. M. A. in its efforts to obtain recognition of, and commission for, the army veterinarian. The report was adopted.

The President then called on Dr. Blackman, who responded with a thoughtful and well prepared paper on the subject of "Veterinarians as Sanitarians." All the members joined in the discussion which followed, and it proved to be an interesting and instructive topic.

He was followed by Dr. White, whose subject was "Municipal Meat Inspection." Dr. White's position as meat inspector for the city of Nashville enabled him to handle the subject in a practical and competent manner, and he plainly illustrated the benefits arising from, and the necessity for, a system of inspection in all the larger towns of the State.

Dr. Plaskett came next, with a paper on "Trismus in Horses," * a disease which does not appear to be described in the text books on veterinary literature. It is quite prevalent throughout the South, and in the discussion which followed every member had something to say on the subject in some of its aspects.

Dr. Fenimore followed, with an informal talk on the subject of "Vilde und Rinderseuche." He described an outbreak which had occurred on the State Farm at Knoxville, and the difficulty which had been experienced in properly diagnosing it. He described the symptoms, attempts at treatment, etc., and for fuller information referred the members to the paper which he had prepared, and which was read at the annual meeting of the National Association.

The election of officers resulted as follows: President, Dr. H. D. Fenimore; First Vice-President, Dr. T. W. Scott; Second Vice-President, Dr. R. E. Collins; Treasurer, Dr. G. B. Blackman; Secretary, Dr. Jos. Plaskett.

The time and place of the next meeting was left to the Executive Committee, and there being no other business the meeting adjourned.

JOS. PLASKETT, D. V. S., *Secretary*.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

The first meeting of the year was held October 14, at 8 o'clock. The Secretary, Mr. Jacobs, called the meeting to order and Mr. Nolan was appointed Secretary *pro tem*. Mr. Hoopes was made critic.

The names of Messrs. Kerns, Tallman, Mayer, Young, Bader, Walter, Watson and Gilliland were proposed and duly elected to membership. The following gentlemen were elected as officers: Mr. Jacobs, President; Mr. Taylor, Vice-President; Mr. Hoopes, Treasurer; Mr. Nolan, Secretary, and Mr. Hughes, Librarian. Executive Committee: Messrs. Kerns, Corman, Tallman and Bader.

Meeting adjourned at 9.15 P. M.

Second meeting was held October 21, at 8 o'clock. The society was called to order by President Jacobs. Mr. Young was appointed critic. The names of Messrs. Powell, Dunn and Shore were proposed and duly elected to membership.

Prof. Leonard Pearson then gave an interesting, likewise

* Will be published in an early issue of the REVIEW.

instructive, address on the "Conformation of the Horse." A vote of thanks was extended to Prof. Pearson for his eloquent address.

Meeting adjourned at 9.30 P. M.

The third meeting was held November 4, at 8 o'clock. The society was called to order by President Jacobs. Mr. Kerns was appointed critic. The names of Messrs. Colton, Woodward, Bender, Norton and Willett were proposed and duly elected to membership.

Literary programme was as follows: A paper by Mr. Hoopes on "The Male Animals in the Stud."

Debate: *Resolved*, That a veterinarian should not have his office at a livery stable.

Affirmative: Messrs. Cheney, Young and Walter. Negative: Messrs. Keiter, Hughes and Gilliland. The subject was ably handled by the gentlemen on the debate, likewise by the members in general. The negative side was victorious. The President thanked the members very kindly for their interest in the society, and asked them to continue in this line.

Meeting adjourned at 9.30 P. M.

L. A. NOIAN, *Secretary*.

NEWS AND ITEMS.

THE MCKILLIP VETERINARY COLLEGE has forty-two students this session.

DR. WM. MCLEAN (O. V. C. '82), of Portland, Oregon, was appointed State Veterinarian by Gov. Lord, October 1st.

DR. R. H. HARRISON, formerly at Kansas City, is now with the Bureau of Animal Industry in charge of meat inspection at Milwaukee, Wis.

DRS. J. E. CLOUD, of Richmond, Ind.; Geo. P. Statter, Sioux City, Ia.; James Nicholson, Pipestone, Minn., and A. P. Hopkins, of Ames, Ia., are among the post-graduate students of the McKillip Veterinary College.

THE ANNUAL DUES of members of the American Veterinary Medical Association were reduced at the last meeting from \$5 to \$3. Those who had paid the former amount for 1899 will be credited by \$2 for the year 1900.

DOGS AND CATS POUND IN PARIS.—724 dogs and 44 cats

were sent to the public pound (*fourrière*) during the year 1897. From ante and post-mortem inspection of those animals, 105 cases of canine and 14 of feline rabies were observed.

A FREAK PIG.—Dr. G. A. Clark, of this city, shows a curiosity in the shape of an elephant pig. The animal was born last April on the farm of E. J. Chamberlain at Stoughton, Mass. The head, in every feature, bears resemblance to that of an elephant.—[*Manchester (N. H.) Union.*]

A VETERINARIAN ELECTED CORONER.—On November 8, 1898, Dr. E. C. Porter, V. S., of New Castle, Pa., was elected Coroner of Lawrence County by an overwhelming majority, having 650 more votes than any of the other Republican candidates. The veterinarians of Lawrence County stick together like pine tar to a mustang. E. E. B.

LIKES THE REVIEW.—Dr. G. R. Young, of Omaha, Neb., under date of Nov. 15, says: "I am well pleased with the REVIEW, and wonder why I have not always subscribed for it." Many others would feel the same way if they were familiar with it. Why don't you tell your veterinary colleague what he is losing? It will do you both good.

DR. NELSON P. HINKLEY, of Buffalo, N. Y., has resigned his position as one of the New York State Veterinary Examining Board, which with that of Dr. Huidekoper makes two vacancies upon the Board. This will necessitate the appointment of both Drs. George H. Berns and W. L. Baker, who were nominated at the last meeting of the State Society.

CANDIDATES for the 1899 meeting of the American Veterinary Medical Association are New York City, Baltimore, and Detroit. We predict that New York will win, and as the State Association resolved to meet in conjunction with the National Association should it come to New York, there is every prospect of a grand gathering in the last year of the nineteenth century.

THE SERUMS IN PRACTICAL USE IN CHICAGO.—Veterinary practitioners of Chicago are using tetanus antitoxin quite extensively following nail wounds, especially in those cases kept in stables known to be infected with tetanus bacilli, with the best of results. Some very good results are also noted following the injection of streptococcus antitoxin in purpura hæmorrhagica.

RECOGNITION OF TICK DIPPING.—The Illinois Board of Live-Stock Commissioners has amended its quarantine regulations so as to admit cattle from the scheduled districts on pre-

sentation of certificates from an agent of the Bureau of Animal Industry or of the Illinois Board of Live-Stock Commissioners that they have been dipped in accordance with the formula prescribed by the Bureau of Animal Industry.

A HORSE LIVES 32 DAYS WITHOUT FOOD OR WATER.—A Nevada, Mo., despatch dated October 25, said: "A remarkable case of long life without food or drink has developed here when a horse supposed to have been stolen from W. T. Letton of this county on the night of September 25, was found alive in one of the stalls at the fair grounds. When found it had eaten all the pine timber within reach and was still able to walk. It had subsisted thirty days without food or drink."

Dr. T. W. SCOTT, formerly of Nashville, but now of Clarksville, Tenn., who will be remembered for his good fellowship and geniality toward the visiting members at the Nashville meeting of the U. S. V. M. A., has recently taken unto himself a bride in the person of a lovely and estimable young lady of Clarksville. Dr. Scott is conducting a large veterinary infirmary and shoeing shop and has won for himself a host of friends, and we wish him success both in his business and matrimonial ventures.

COULDN'T DO WITHOUT THE REVIEW.—Joseph Plaskett, D. V. S., Secretary Tennessee Veterinary Medical Association, writes under date of Nov. 18th: "I do not see how I could do without the REVIEW now. Best wishes for its continued success." This is given chiefly as a specimen of what hundreds would write if they were only induced to subscribe. Reader, have you told your brother practitioner of the many valuable things you get from the REVIEW, and that the small subscription fee is more than returned to you in every issue? Begin now.

ANSWER TO A CORRESPONDENT.—*Harrisburg, Pa., Nov. 15, 1898.*—A dispute has arisen in this town between some quacks and myself, they claiming that the operation of neurotomy is cruelty to animals, while I claim it is not if done properly by a qualified veterinary surgeon, when all other treatment has failed to relieve navicular disease. Please give your opinion. J. A. Haas, V. S., 112 Locust St. *Answer.*—If the patient be a proper subject for the operation, we do not consider it a cruelty; but a necessary procedure to relieve pain and render a worthless animal a more useful servant of man.—EDITOR.

SIX ONE WAY AND HALF A DOZEN THE OTHER.—The

high duties and various restrictions placed by Germany on our export meats have nearly stopped the shipment of animals on the hoof and greatly increased the price of meats to the consumer. This advance has been so sharp that consumption has fallen off in a marked degree and the population has turned toward cured meats. This is peculiarly advantageous to us, as we control a large part of that trade. It would thus appear that the agrarians whose efforts have brought about these restrictions have effectually "whip-sawed" themselves.—(*Breeder's Gazette*.)

HOW THE HORSES WERE GOTTEN ASHORE AT SIBONEY, CUBA.—The landing of horses at Siboney from the American transports was a work attended with a good deal of risk. It was impossible to land the animals without making them swim ashore, and great difficulty was experienced in getting them into the water. The method pursued was ingenious, to say the least. The horse was made to stand on a board at the side of the vessel, and a rope from his halter was thrown to a boat alongside. The board worked on a pivot in the middle, and shot the horse, very much surprised, into the water. When two had been served thus they were towed off towards the shore by a boat's crew. It was a half-mile swim to the shore, through a choppy sea, and many of the horses only landed to die in a few days. Some of them would get into the sea without being roped, or get loose when in the water, and with provoking stupidity would start swimming out to sea. Some of them were recaptured, but others were washed away.

A NEW TREATMENT FOR BURSATTE.—In a private letter from Prof. W. L. Williams the following interesting paragraph occurred, and as it is of professional interest we take the liberty of reproducing it: "I tried during the past summer a very interesting experiment in the treatment of bursatte (summer sores). Knowing that the sores develop only in hot weather and the two cases belonging to our clients being affected entirely on the legs and feet I reasoned that keeping these parts cool and free from irritation might be beneficial. I therefore directed that the feet and legs be not groomed at all during the heated term, but instead that they be showered with cold water (from city hose) twice daily. As a result, of the two patients which had each summer previously become unusable during the hot weather, one passed through without an eruption, the other showed five or six slight eruptions which yielded promptly to silver nitrate, iodoform and pressure. Of course the experiment is limited, as

we are too far north to see much of the disease. I wish REVIEW readers living farther south might try this simple expedient."

RESULTS OF THE OMAHA CLINICS.—It will be interesting to those who witnessed the operations at Omaha to know the results in the various cases, as to the private surgeon the results are the greatest *desideratum*. Dr. G. R. Young, of Omaha, whom all remember through his many courtesies as a member of the local committee of arrangements, writes the REVIEW under date of Nov. 15th, as follows: "Our clinical cases held here all turned out well with the exception of the first cryptorchid. I believe Dr. Peters is using the little black mare that was operated upon by Dr. Williams [vaginal ovariectomy] for general purposes. The gelding on which Dr. Merillat operated [arytenoidectomy] has done remarkably well—gained in flesh and is driving well. There was no perceptible improvement in the second subject that Dr. Lyford operated upon, and I have since fired and blistered the tendons. I heard this morning that he is slightly lame yet. I attribute the saving of the bitch on which ovariectomy was performed by Dr. Vincent due to the care and treatment that it received from the hands of Mrs. Young."

CALIFORNIA SEEKS VETERINARY GUIDANCE—DR. ARCHIBALD SELECTED.—At an adjourned meeting of the State Board of Health, in the Palace Hotel, San Francisco, last evening, the subject of anthrax and Texas fever among cattle in California was considered and also a report from Dr. D. D. Crowley relative to his visit to Secretary Wilson, of Washington, D. C., concerning the best methods of eradicating both contagious and infectious diseases among the cattle of the State. Dr. Crowley reported that Mr. Wilson considered the best method of accomplishing this end would be by appointing a first-class veterinary surgeon to make an investigation throughout the State and report from time to time to the State Board. This veterinary surgeon should work in conjunction with the federal investigators. By such energetic work Dr. Crowley believed the district now quarantined in California might be greatly decreased. Upon Dr. Crowley's motion, it was determined to act upon Mr. Wilson's suggestion, and as a consequence Dr. Archibald, of this city, was elected. He is to receive a salary and all expenses, subject to the approval of the Governor. Dr. Archibald is President of the State Veterinary Society and is at present doing scientific work for the Oakland Board of Health. This is the second person from Oakland, who, through Dr. Crowley's efforts, has been

recognized by the State Board of Health.—(*Oakland, Cal., Tribune, Oct. 19.*)

A MONUMENTAL LIAR.—Even the giving of names, dates and places will not save the hero of the following story from reaching his proper position as an asinine prevaricator, whose clumsy recital in the New York *Evening World* is not worthy of a place in a scientific journal except as an exhibition of the imposition practiced upon the lay public by the extravagant stories of "existing practitioners": "East New York has another nine days' wonder. This time, although the incident is local, the people out there are talking of an event which will interest veterinarians from one end of the globe to the other. A week ago, a man up in a hay-loft over the stable of William Fiesler, at Blake and Rockaway avenues, slipped and fell head first into the hole over one of the stalls through which hay is dropped for the horses. When the man fell a silver watch and four pennies dropped from his vest pocket. When he got down to the stable watch and coins were missing. There was no one else around and so it was decided that a powerful bay horse had swallowed them with his fodder. The local veterinarian, Dr. George A. Crowin, was called in, and after listening to the strange story removed the horse to his hospital at Vermont and Jamaica avenues. The big beast was placed under a powerful drug and strapped to the floor. With much care, a piece of flesh in the shape of a lid about six inches square was cut away from his stomach. Predictions proved correct. The horse had swallowed the watch and the pennies, as well as a blanket pin, which had turned black. The watch had stopped an hour after being swallowed. After the things had been removed the lid in the animal's stomach was sewed up and restoratives applied. From Thursday last until yesterday the horse continued as a patient at the hospital. Yesterday, however, he was taken to Patchogue to fully recuperate."

THE POPULARITY OF THE HORSE.—To the pessimists who have been preserving equine skeletons so that they might have a real curiosity when the horse became extinct, we commend the following item from an elaborate account of the late New York Horse Show, in the *Herald* of November 19: "Now that the Horse Show is nearing its end there are several points which have been established this season that are of especial interest. First of all, the lasting popularity of the horse. We have heard much about the passing of this beast, and have come to believe, some of us, that what with bicycles

and horseless carriages and electric cars and all the modern modes of conveyance, that the horse might soon disappear from the haunts of men. Ask the directors of the Horse Show and they will tell that, far from losing favor, the horse is growing in men's and women's fancy, and that there is more riding and driving now than ever, and greater attention paid to quality and character of horses and appointments. This has been shown at the Horse Show this season. In point of quality of horses and perfection of appointment the display has far exceeded those of former years. The Horse Show folk take much of the credit of this to themselves. They say their annual exhibitions have served as an educator. At all events, they hold that the marked improvement is conclusive proof of the increasing popularity of the horse and all that pertains to him. Notably is this extending fondness for horses marked among women and shown in growing numbers of those who have taken to the saddle. Directors of riding academies who have been about the Garden say that they have had an unprecedented demand for women's saddle horses in the last six months. They attribute this to the bicycle. Wheeling, they argued, taught women the delight of activity out of doors, and now that many of them have found certain objections to the wheel they have turned to horseback riding as a substitute, and rejoice in the exchange. Still, on the lessons of the Horse Show the managers point with exultation to the hold it retains on society, and reviewing the week and the attendance day and night they are twitting those who a few days ago were predicting that fashion was withdrawing its favor from the show. This gloomy foreboding was based on the comparatively small prices paid for boxes this year, and led to the belief that the popularity of the exhibition was waning in the smart set. It rested with the show itself to develop the underlying reason for this failure of the old time demand for boxes."

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AMERICAN VETERINARY REVIEW.

JANUARY, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

NEW YORK CITY GETS "A.V.M.A." MEETING OF 1899.

The Executive Committee of the American Veterinary Medical Association has decided that the best interests of the members and the profession will be subserved by the selection of Gotham as the place for holding the annual convention of the last year of the nineteenth century. It is peculiarly fitting that the first meeting of the new association should be held in the same city where, thirty-six years before, its predecessor, the United States Veterinary Medical Association, was organized, and sent forth upon a career which has been a glorious succession of triumphs in moulding the character of a profession which now claims its position among the advanced sciences of this age.

Starting under such favorable auspices, much more will be expected of the one which will be called to order in the same city next September, and we have not the least doubt but that when the record shall be opened in thirty-six years hence the splendors of grand achievements will meet the eye upon every page.

Next September should and will be a red letter day in veterinary matters in North America, for during the second week in that month a number of important veterinary gatherings will occur in the same city, bringing together veterinarians from all over the country. This is the list :

- (1) American Veterinary Medical Association.
- (2) New York State Veterinary Medical Society.

- (3) Veterinary Medical Association of New York County.
- (4) United States Experiment Station Veterinary Association.
- (5) Association of Veterinary Faculties and Examining Boards of North America.
- (6) American Veterinary College Alumni Association—Silver Anniversary.

With such an array of interesting events it is no exaggeration to state that we are upon the threshold of a veterinary jubilee, the equal of which has never been contemplated in America. Aside from this the delegates to the Seventh International Congress of Veterinary Surgeons at Baden-Baden will just be able to reach New York in time to participate in the multiple attractions above set forth.

That New York will open wide her doors of hospitality to the profession of the country is already assured, for the County Association extended a unanimous invitation to come, and that body of earnest associationists stand ready to give all a hearty welcome. A strong local committee of workers will be named; and nothing will be left undone to make the greeting worthy of the occasion.

The clinical feature inaugurated at Omaha should reach its perfection in New York, and the pathological exhibit can be greatly enlarged upon, profiting by the experience of last year.

Veterinarians from the West are asked to travel a long distance, but the galaxy of events will be so attractive that they may feel well repaid for the journey, and there is every prospect that the East will reciprocate in the following year by going back to the land where in 1898 they were received with open arms and hearts.

SEVENTH INTERNATIONAL CONGRESS OF VETERINARY SURGEONS.

In a previous issue of the REVIEW, our readers were made acquainted with the announcement of this important gathering.

Since that date other communications have been received and one of them is presented to our colleagues, and their attention earnestly called to the importance of the Congress, as well as to the value of the subjects which will occupy its sittings. The plan presented in the circular, which will be found elsewhere in our pages, tells of the great effort which is being made by the committee of organization to make the occasion all that can be desired. The general government of the German Empire and that of the city of Baden-Baden have already granted large sums of money for the Congress, and a long list of subscribers is now on hand.

In the present circular a suggestion is made as to the propriety of forming an American sub-committee and asking for information as to its expediency. The answer to this will depend upon the number of American adherents, and it is important that this should be in goodly proportion to the number of veterinarians in North America. No doubt a good representation to the Congress is imposed upon our colleges, our State societies, and, above all, from our National Association, without counting the Bureau of Animal Industry. The REVIEW is authorized to receive subscriptions, and will be ready to give all information that may be desired. A check for \$3 will insure membership, with a copy of all the transactions, which will be issued in French, German and English, if the number of 100 English and American subscribers is reached.

And it is not only veterinarians who will be interested in the work of the Congress, but also agriculturists, and there can be no doubt that the great agricultural community of the United States will be represented at Baden-Baden next August. We feel confident that through their publications the editors of our numerous agricultural papers will call the attention of their readers to the importance of the Congress and of the intimate relations that exist between its work and that of agriculturists and stock raisers, and the benefits they will derive when it is taken into consideration that so many days of the meeting are to be devoted to the discussions which must interest them

—such as : measures against the spread of epidemic diseases, encouragement of international trade ; tuberculosis, foot-and-mouth disease, swine fever, etc.

But a few months ago the veterinary word was “On to Omaha.” May we call now for that of “On to Baden-Baden?”

THE WASHINGTON HUMANE SOCIETY.

If ever a sect or association labored under an incubus of fanatical ignorance and prejudice, the American Humane Association is the one of most prominent distinction, and the incubus is its local society located in the District of Columbia, whose recent action should expose it to the ridicule of all men, and result in its gradual but certain disintegration, and its place taken by some other organization with brains and humanity instead of a narrow-minded, imbecilical, hypocritical conglomeration of long-eared fanatics, who cannot spare sufficient brains from the function of feeding themselves to grapple with an idea larger than a pea. This local society is father and mother of the Antivivisection Bill, which has been before Congress as a menace to scientific progress for a number of sessions, and they regard every living being who cannot curtail himself within its narrow cloak and become an advocate of that foolish emanation of a lot of cranks, as an enemy of society and one to be looked down upon from their lofty heights of morality. The American Association met in the Capitol City in December, and in seeking papers to be read at that meeting the Chairman of its Sub-Executive Committee wrote to Secretary Wilson, and solicited a contribution from Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, and expressing the greatest pleasure and satisfaction when informed that the Department of Agriculture would co-operate with them. Dr. Salmon announced his subject as follows : “Diseases and Abuses of Animals in the United States : what is being done by the Federal Government toward their alleviation and prevention, and what the Humane Societies of the country may do to assist in these efforts.” When everything had been thus settled, and the distinguished head of

the Bureau had prepared a careful and valuable paper upon the subject, the Secretary of the American Association again addressed a letter to the Bureau Chief saying that when the Washington society found Dr. Salmon's name upon the programme it went into hysterics and asserted that if it remained there all interest in the meeting would be suspended. The writer proclaimed innocence of any responsibility for this action, regretted the circumstance, and assured him of distinguished consideration by the American Association. Dr. Salmon's letter of reply is so full of wisdom and is such a complete exposition of the ridiculous position of the Washington Society that we append it in full:

U. S. DEPARTMENT OF AGRICULTURE, BUREAU OF ANIMAL INDUSTRY, WASHINGTON, D. C., November 29, 1898.

Mr. James M. Brown, Chairman Sub-Executive Committee, The American Humane Association, 405 Gardner Building, Toledo, Ohio.

MY DEAR SIR:—Your favor of the 21st instant is received, and I assure you there is no cause for you to feel embarrassment on my account. It is remarkable, however, that the Washington Humane Society should so greatly fear the reading of a paper before your body, upon such a practical subject as I was to present, that it would lose all interest in the meeting in case that part of the programme were carried out. If the cause which they are advocating would be so seriously endangered by one man and one paper, with a convention predisposed in their favor, should not this confession of the fact prove embarrassing to them rather than to any one else?

The Washington Humane Society is making a great effort to secure legislation to stop experimentation upon animals even for the advancement of medical science. In this I sincerely hope they will never succeed; but they are alienating from co-operation with the humane societies the great humane forces of the country, viz., the medical and veterinary professions, the biologists, the universities, and the Agricultural Department of the Government. In the meantime the value of such experimentation is becoming more and more apparent, and we are slowly learning, by means of it, how to control the destructive diseases affecting mankind and the lower animals. This Bureau has distributed upon request of the owners of cattle, 500,000 doses of blackleg vaccine, during the past year, reduc-

ing the loss from about 15 per cent. to 1 per cent. This year we have demonstrated that Texas fever can be prevented without serious restriction to the traffic in southern cattle, and this discovery will save millions of dollars annually to the people of the Southern and Southwestern States and Territories. We are also introducing a serum treatment for hog cholera which saves 80 per cent. of the animals in diseased herds. These discoveries, made by experimenting upon animals, mean not only many millions of dollars to the country, but they mean the cheapening of the food-supply, which is always equivalent to saving human suffering and prolonging human life, and they also mean the prevention of infinite suffering among the species of animals affected by these diseases.

Under these circumstances is it not time for the liberal and intelligent members of the American Humane Association, who joined that organization to prevent cruelty to animals rather than to secure personal notoriety, to stop and consider whether they are called upon to further support and encourage those narrow-minded and intolerant people whose efforts are a hindrance rather than an aid to the cause of humanity?

Assuring you again of my appreciation of your invitation, and of my sympathy with every intelligent effort for lessening the great sum of misery and suffering to which both our own race and the lower animals are subject, I am,

Very sincerely yours,

(Signed)

D. E. SALMON,

Chief of Bureau.

All this association needs is a little more rope, and it will hang itself. *The Philadelphia Medical Journal* for December 10th printed the correspondence in full, together with the excellent paper which Dr. Salmon had prepared, and editorially made the following comment:

“KINDNESS TO ANIMALS, OR HATRED OF SCIENCE, WHICH?—In the transfer of a car-load of animals across the continent, or of a ship-load to Europe, there is a hundred times more suffering, more awful torture, than in all the laboratory-experiments of the whole world since science has existed. Laws exist on the statute books, which, if carried into effect, would do away with these atrocities. In entire frankness we ask what is the conclusion logically necessary from the crusade of the antivivisectionists against scientific investigation? Plainly it

is not pity for suffering that is the dominant motive with them, but the old mediæval hatred of science. If it were horror of suffering the infinitely greater evil would be attacked first. Antiscience is neither ingenuous nor is it logical. A tithe of the zeal expended would eradicate the hideous, illegal, unnecessary torment in the shipment of cattle. We even protest that there is more suffering from the callousness and brutality in the markets and restaurants of one city in one day, than in all the laboratories of the world during the same day. What are the antivivisectionists doing to stop it? What shall be thought of the motives of people who ignore all this and forbid Dr. Salmon to speak to them? The old superstition that persecuted 'heretics,' Galileos, and Quakers, is by no means dead."

A TRANS-MISSISSIPPI ASSOCIATION.

The question of establishing an Association in the West, thus virtually dividing the American Veterinary Medical Association, is being agitated, and in our Department of "Society Meetings" in this issue will be found reference to it in the reports of two State meetings—the Illinois and Missouri. Thus far it appears that only an expression of opinion is asked for, which was in both instances adverse to the proposition. We advise our Western friends to go slowly in this matter, and reflect upon the adage that "United we stand, divided we fall." The National Association needs every member it can secure in all the territory over which its influence can be extended, and the more its arms stretch forth the greater its opportunity to guide and protect the footsteps of the young profession. The only object which the National Association has or can have is the greatest good to the greatest number. A Western association, we fear, will restrict the influence for good of the one, and be not of much advantage to the other.

OUR pages are overrun this month, and a large number of extra ones have been added, just as has been the case for some time past. Our collaborators and correspondents are asked to have a little patience with us if the publication of their valued

literary contributions are delayed. The department of "Society Meetings" in the present number is a perfect reflection of veterinary progress, and is very interesting and valuable reading. When our suggestion to double the REVIEW's circulation by the coöperative plan of each subscriber securing one non-reading colleague to become one also, is an accomplished fact, we will be enabled to enlarge the magazine to accommodate all. Quite a number of subscribers have grasped the idea with alacrity, and one or two have sent in four or five subscriptions for friends. The idea will grow, and the profession will reap the reward.

VETERINARIANS who intend to prepare papers to be presented at the next meeting of the American Veterinary Medical Association, which will be held in New York City, September 5th, 6th, and 7th, 1899, should notify Secretary Stewart, 7½ South James Street, Kansas City, Kansas, of such intention, giving the title of their subject, if possible, at the earliest date.

DR. SALMON, of the Bureau of Animal Industry, has recently contributed some very interesting articles to the *Breeder's Gazette* upon the subject of "Texas Fever Problems." The dissemination of knowledge upon such topics among the progressive breeders of the country will advance our interests materially. It is a step in the right direction, and should be followed by others.

THE term of office of State Veterinarian Pearson, of Pennsylvania, expires with the incoming administration, and there should be a united effort on the part of the profession of the Keystone State to keep him in office, for his tenure of office has been marked by so much intelligent activity as to give promise of the most far-reaching results for the benefit of the live stock interests of the commonwealth, as well as dignity and popularity to the profession which he loves and adorns.

ORIGINAL ARTICLES.

GLANDERS AND ITS SUPPRESSION.

EXPERIMENTS WITH MALLEIN.

BY DR. J. M. WRIGHT,

Professor of Pathology and Contagious Diseases, McKillip Veterinary College of Chicago, and Assistant State Veterinarian of Illinois.

An Address delivered before the Inter-State Association of Live Stock Sanitary Boards, at Omaha, Nebraska, October 11, 1898.

Glanders is one of the oldest diseases on record to which the equine race is heir. We find descriptions of it given over two thousand three hundred years ago. While it is one of the oldest diseases, it is the most loathsome, contagious and dreaded known to generations past and present. It is essentially a disease of the equine race, but by inoculation can be transmitted to other animals. For example, guinea-pigs, field mice and even men. Once introduced into a province, state or country, it has remained, notwithstanding the efforts of the ablest men of the age. It exists to-day in every part of the world inhabited by the horse, mule or ass. It causes greater destruction in warm countries than in cold, even with the same management and care of the animals. All countries in all ages, past and present, have made desperate efforts to rid their domains of the scourge. There have been repeated attempts from the beginning down to the present time to cure animals suffering from the malady by good management and the application of medicines. The French, at the beginning of the present century, came to the conclusion that it was not contagious and repealed all police sanitary laws and attempted to stamp it out by the use of medicine. Note what followed: in less than twenty-five years there was a most deplorable condition of affairs in every part of the French Republic. The percentage of mortality increased from a minimum to a high rate per cent. The destruction of property and the loss of human life became so great that before many years had passed they established

new police sanitary laws and enforced them with greater vigilance than ever before. This had the desired effect of lessening the percentage of mortality.

I personally know of numerous instances where effort has been made to effect cures by aid of therapeutical agents in this country: one instance where barns were secured outside the city and many glandered patients taken for treatment. Such efforts were ineffectual, as they never returned a single horse cured. Horses had been treated in another barn for two years until, as a State officer, I discovered them and what was going on. I took possession of the premises. The owner had never owned more than four horses at any one time, but during the period that they were treated he lost eleven diseased with glanders. When I took possession of the place, I found three horses in the barn; one a large sorrel horse so badly diseased with farcy and glanders that he could scarcely walk; one large bay horse almost as badly diseased, and one gray horse, which he had owned for years, was in good condition and at first sight would be regarded as in a perfect state of health. Upon closer examination he was found to have glanders in the chronic form. It is needless to say that I destroyed them all. I could relate many similar instances just as provoking as the above, but time will not permit.

Attempts have been made in the West to effect cures by turning glandered horses out on the ranges. If this were done in Colorado, Wyoming, Montana and Dakota, when the weather is fine, in the summer months, the animals would gain in flesh and many of the symptoms would become modified or disappear, but when feed becomes scanty in the fall and cold rains, sleet and snow, and blizzards with their chilly blasts come, the disease would assume the acute form and the animals would die in great numbers. Some of the stronger ones would, perhaps, live through the winter and with the return of spring, its fine weather, and plenty of food, they would improve and continue in the chronic form, spreading the seeds of contagion.

Nasal discharges and farcy are only manifestations of gener-

alized or systemic glanders in ninety per cent. of the animals afflicted with the disease. All such animals should be destroyed without question. It is not the animals that have the disease in the above forms which are to be most dreaded, for they are usually destroyed as soon as discovered, but it is the animals having it in the occult form which spread the seeds of contagion in the community when it is once planted there. Some will remain in apparent health for months and years, and have only slight periodical discharges from the nostrils, and often so slight as to escape notice. Others will not even have such discharge, but continue in apparently perfect health for months and years, or until some debilitating influence is brought to bear upon them. Should they suffer from exposure, be poorly fed, or be attacked with catarrh, influenza, pleurisy or pneumonia, it would precipitate the disease into an acute form very quickly. It behooves us to detect all animals which have been exposed, and are infected in an incipient form. As this cannot be done by physical examination, we must cast about for some element or agent to aid us.

Aided by mallein, and following its use by post-mortems, I have found that on an average forty per cent. of all animals exposed are actually infected with glanders in its incipient form, with absolutely no external manifestations of the disease; in ninety-five per cent. the lesions will be found only in the lungs, or liver or mesenteric lymphatics, or in all three of them; in not more than one per cent. will there be lesions in the upper air passages or in the larger bronchial tubes.

Mode of Invasion.—The modes of invasion are many, and these vary according to circumstances and condition of the animals, the state of the sanitary surroundings, the climate and the season of the year. An animal may become infected by rubbing its nose against the nose of one with a profuse discharge, or in like manner from the walls of the stall, feed-troughs, mangers, etc. It can be produced by rubbing the contents of a glanderous ulcer, tubercle, or the discharge from the nostrils on a mucous membrane, or on the skin where there

are no abrasions, but if it be applied to the latter it must be well rubbed in. Infection may take place in the mouth and alimentary canal, through wounds or abrasions, when obtained from bridle bits, hitching posts, walls of the stall, manger feed troughs, or from infected feeds, such as grain, hay or straw. I feel safe, however, in saying that less than ten per cent. of all cases of infection take place in the above described manner. When it does occur there will invariably be at first a localized lesion, which will spread by means of the lymphatics into the surrounding parts, which will extend farther and farther until it becomes general. The common watering trough is the place where animals become infected in a majority of cases. A horse is watered one or more times each day, when his stomach is empty and he is thirsty. Usually under such circumstances he will ingest large quantities, which pass at once from the stomach into the intestinal tract, where it is absorbed almost immediately by two sets of absorbents:

First, the portal circulation, which carries this infected matter and pours it into the liver, where it for the first time has to pass through a capillary system, and where the bacilli have their first opportunity to escape from the vessels and gain entrance into the tissue spaces and lymphatic vessels, where they produce their characteristic lesions. Those which fail to escape are emptied into the posterior vena cava and the next capillary system they pass through is in the lungs, where they again have the same opportunity as when they passed through the liver.

Second, the mesenteric lymphatic system, which collects and pours its contents into the anterior vena cava through the thoracic duct. The infected material having thus found its way into the venous circulation, quickly finds its way into the lungs, where it for the first time passes through a capillary system and the bacilli have an opportunity to escape into the tissue spaces. It will be noticed that the early primary lesions are in the parenchyma of the lungs and not in the bronchial tubes, which explodes the inhalation theory.

Farcy.—Farcy may be produced by cutaneous infection in various ways, such as wounds, abrasions, hypodermically and by glanderous material being placed upon the skin or mucous membrane. If on the skin it will be necessary to apply friction, or to thoroughly rub it into the openings of the same. Ninety per cent. of all cases of farcy are produced by the bacilli escaping from the lungs or through them, gaining entrance into the general arterial circulation, in which it is carried to the extremity of the artery, into the capillary system, where the bacilli escape from these small vessels into the small tissue spaces and smaller lymphatics. When they have once gained entrance into these tissue spaces they are permitted to remain at rest for a longer or shorter period of time, thus giving them ample opportunity (if not destroyed by nature's elements) to multiply and produce their characteristic lesions. And if such lodgment and development should be near the surface of the body there would be manifest farcy buds. I am supported in this statement by the fact that farcy buds may be seen on different parts of the body almost simultaneously, which would not take place if they were produced by cutaneous infection.

Mallein was first produced by Kalning, Preusse and Pearson, by making a culture of the bacilli of glanders in the proper culture media. I consider it of great value as an assisting agent in making diagnoses in occult cases. In fact, I have never known it to fail in the work for which it is intended. I have used it on more than two thousand horses, which were diseased or had been exposed. I have used mallein experimentally to test its value as a diagnostic agent on 138 healthy horses, of all ages, at all seasons of the year. On six horses with well marked generalized melanosis, thirteen cases of pleurisy, sixteen cases of pneumonia, three cases of pleuro-pneumonia, twenty-four cases of influenza, three cases of purpura hæmorrhagica and fourteen cases of lymphangitis, two of which were in a state of suppuration; *i. e.*, having numerous little abscesses from the hoof to the stifle, resembling very much the buttons and ulcers of farcy. None of these animals showed the slightest degree of

reaction, either by causing an elevation of temperature or any systemic disturbance. The use of mallein as an agent in ascertaining the animals which contain the bacilli cannot be extolled too highly. I would recommend its use in all doubtful cases and on all horses, mules or asses that have been exposed to glanders.

To use mallein intelligently one must, in the first place, be sure that he has a good quality of the agent, and in making the test I would recommend the following method :

The first mallein test should not be given earlier than ten days after the last glandered animal has been destroyed, nor later than three weeks, and the premises in the meantime should be thoroughly cleaned and disinfected. I have observed if the test be given immediately after the last glandered horse has been destroyed, that some will not react, but will do so later at a second test. Such a thing will rarely occur if two weeks are allowed to elapse after the last glandered animal is destroyed before giving the test. The test should cover a period of two days, and the first day the temperatures of the animals should be taken at 6 A. M., again at 12 M. and again at 6 P. M., to ascertain their normal temperatures. At 9 P. M. proceed to give the injection with a hypodermic syringe in the following manner : First thoroughly sterilize the skin on the cervical region beneath the mane, with a strong antiseptic. Then burn the hypodermic needle in the flame of an alcohol lamp, load it with 2½ c.c. of mallein and inject beneath the skin at the point indicated in the cervical region. Great care should be exercised in using the hypodermic needle. It should be used but for one animal, or be thoroughly sterilized in the flame of an alcohol lamp before each injection, as neglect in this particular may result in the transmission of the disease from one animal to another.

On the second day the temperature should be taken at 6 A. M., 9 A. M., 12 M., 3 P. M., 6 P. M., and at 9 P. M., which completes the test. Great care should be exercised in taking the temperature from 6 A. M. to 9 P. M., for the simple reason

that some of the animals may not react until late in the day. I have in one instance observed an animal that did not show the slightest disturbance until twenty-three and a half hours had passed after the injection of mallein, and at the expiration of this time he commenced to react to an extreme degree, and the disturbance was so great that he died at the end of the fourth day. Post-mortem showed the lungs to be in a desperate glanderous condition, with the liver badly affected.

In a number of instances I have observed that the animals have not shown any indication of reaction until eighteen, twenty, twenty-one and twenty-two hours have passed, while all experimenters know the reaction will usually be manifest at a period ranging from eight to fifteen hours.

All animals that show an elevation of temperature of four or more degrees, have a large and painful swelling at the point of injection, excessive systemic disturbance, loss of appetite and depression, should be destroyed at once.

All animals showing an elevation of temperature of two or more degrees, with a moderate amount of swelling at the point of injection, no noticeable amount of depression, no loss of appetite and systemic disturbance, except the elevation of temperature, should be isolated and kept from all other horses, under quarantine for from three to six months and inspected once each week by a competent veterinary surgeon. They should be out in the open air and sunshine, with moderate work, but never enough to produce exhaustion; at the end of this period they should be given another mallein test. All animals showing reaction at the last test should be destroyed, and those which do not should be released from quarantine. All animals not showing reaction at first test can be released from quarantine as healthy.

The Use of Mallein as a Therapeutic Agent.—It is claimed by some very eminent men that mallein will cure occult glanders. Is it not possible mallein is given credit for doing what nature has done? Let us look at the question for a moment. As I have already said, an average of forty per cent. of all ani-

imals exposed are infected with the virus of glanders. If these be kept at moderate work, out in the open air and sunshine and be housed in pure, clean, well-ventilated barns with plenty of good, pure water and nourishing food, less than five per cent. of the forty per cent. will develop into clinical glanders, but will become free of the infection. In such cases if mallein were used it would be given the credit.

I have been unable, by the use of mallein as a therapeutical agent, to determine the percentage of developments into clinical cases, or to diminish the number of mortalities, although I have noticed emaciated animals, after its use, apparently improve in flesh, and occasionally they will continue to improve for three, four and five months, and then develop into clinical cases of glanders. I have given doses every seven days, but found that after four or five doses there would be no reaction, as far as elevation of temperature is concerned, but a part of them would develop into clinical cases. I have tried to accomplish the desired end by giving a dose every thirty days, and with others every sixty days, but the results were negative and some of them would develop into clinical cases. In all these animals the treatment was the same as that given those which slightly reacted from the test.

Taking all these facts into consideration, I do not feel justified in recommending the use of mallein as a curative agent, except experimentally, fearing that inexperienced persons may release animals from quarantine that should be held.

Sanitation.—Before beginning the fight with this enemy it will be well for us to have some knowledge of its power of resistance. First, we find the true cause of this disease is a bacillus, slightly shorter and decidedly thicker than the bacillus of tuberculosis, rounded at the ends and slightly curved upon itself. It can be cultured in various culture media. Outside the body it will develop in the proper media at a temperature above 68° F. and below 113° F. At a temperature above 113° F. or below 68° F. its growth is arrested and it soon perishes. It is destroyed in a temperature of 145° F. in ten minutes, and in a

temperature of 176° F. in five minutes. If it should be in water it will resist the excessive heat longer than in a dry state. A 3-per cent. solution of carbolic acid will destroy it in five minutes, a 1-per cent. solution of permanganate of potash in two minutes, and 1 to 5000 of bichloride of mercury in two minutes. It is destroyed by desiccation in one week. It will live in water above 80° F. from fifteen to twenty days. It will resist putrefaction from fifteen to twenty-four days. It will live in distilled water six days. A low temperature will destroy it very quickly.

After the removal or destruction of the last animal affected by the disease, I would recommend removal and burning of all loose material, such as refuse, hay, bedding, etc. Water and feed troughs and stalls of the stable should be thoroughly scrubbed with a broom and boiling water for the purpose of thoroughly destroying all material which may have accumulated and dried there. To make the cleansing more complete I would advise rescrubbing with 1-per cent. solution of permanganate of potash, 1 to 5000 solution of bichloride of mercury or 3-per cent. solution of carbolic acid, after which whitewash all the above-mentioned places. The wagon tongue and neck yoke should be scrubbed and washed with one of these solutions. All harness, bridles, bridle bits, etc., should be thoroughly washed in a solution of permanganate of potash and oiled.

A field, pasture, stream of water, stable or barn will become perfectly free from the bacillus in summer time in less than ninety days, without any treatment, and in a week or less in fall or winter, the time varying according to variations in temperature. It is absolutely unnecessary to hold any premises under quarantine, where the animals have been removed and where it is impracticable to properly disinfect them, for a longer period.

THE Christmas number of that valuable agricultural and stock paper, the *Breeder's Gazette*, is a perfect gem of artistic excellence, and is worthy of the vast interests which it is so zealously represents and labors for.

A NEW METHOD OF EMPLOYING CHARCOAL IN THE TREATMENT OF ACUTE INDIGESTION IN HORSES.

BY GEORGE J. GOUBEAUD, D. V. S., BROOKLYN, N. Y.

Read before the December Meeting of the Veterinary Medical Association of New York County.

Upon request of one of your honored members, I have the pleasure of presenting for your consideration a subject entitled "A New Method of Administering Charcoal for the Relief of Gaseous Distention in Acute Gastric and Gastro-Intestinal Indigestion." During the past two years it has fallen to my lot to treat a large number of horses suffering from this form of colic by this method, and have secured much success, results being obtained that could not possibly be had under the old method of administering charcoal; indeed, I might state that it was the principal agent I relied upon.

We all know how serious is the condition of the animal that presents itself to us suffering from this affection; abdomen distended to an enormous degree, although at times when the stomach alone is involved the distention will not be so noticeable, eructating gas as rapidly as the abnormally distended and half-paralyzed stomach will permit. The sound of the gas forcing itself up the œsophagus can be heard several feet distant, mouth dribbling saliva, which the animal attempts to swallow, but is successful only after several ineffectual efforts; little or no gas escaping per rectum, although it strains in its efforts to force it out; peristalsis diminished and in some cases absolutely no movement of the intestines can be heard; respiration quick and short; pulse usually soft and compressible and numbering sixty to eighty per minute; mucous membranes cyanosed, due to pressure of the distended intestines upon the lungs, thereby retarding proper oxidation; body swaying from side to side, trembling or shivering of the muscles of the flank and elbow, skin covered with a cold sweat, unable to stand and still unable to lie in the recumbent position, and an anxious countenance. We know in cases of this kind that active and energetic measures must be

employed to stop fermentation, thus preventing gaseous accumulation, and the next step is to rid the intestinal organs of the gases that have already formed by expulsion by means of powerful cathartics, enterotomy or absorption.

The foregoing is a picture of a case of indigestion that demands active and energetic treatment. Medication that will be prompt, rapid, effectual, positive and reliable in results. We know that the animal's condition demands such treatment and with a failure to employ it how liable the stomach is or some of the intestines to rupture and an almost necessarily fatal termination will be the result. Our first thought after enterotomy has been performed, that is if we find such a procedure necessary, is to either stop or prevent fermentation and to absorb the gases which have already formed. Holding views at variance with those generally accepted concerning the prevention of fermentation, and since the only object of this paper is to deal with the absorption of gases, I will proceed with the subject proper.

While attending college I listened more or less attentively to my learned and honored professors eulogize the beneficial results that were to be obtained by the use of charcoal when given internally for the relief of gaseous distention due to fermentation in acute gastric and gastro-intestinal indigestion. We were told that charcoal absorbed several times its weight of gas, and the same statement is made by some of our standard authors on materia medica and chemistry ; and, again, others say that charcoal absorbs fifteen times its weight of gas. Now, while all they have said may be true, still I do not think they treated very many bad cases of acute indigestion with good results ; if they did they treated a different class of horses from those which I attended, or they used charcoal that had effects and results positively dissimilar to that which I employed. If they had good results and employed the treatment such as they told us then, they treated horses whose intestinal organs could not be ruptured even by a modern ram.

I employed charcoal, first vegetable, then animal, and whatever results were to be obtained by the use of the former, still I

did not then nor do I now, unless under certain conditions, believe that animal charcoal has the same absorbing powers that vegetable charcoal possesses. I gave it dry in powdered state, in capsule form, and I gave as much as three pounds to one animal with no effect. Now, gentlemen, I had positively and absolutely no results. The only result I did get I would have obtained had I not used charcoal at all. When I did not give it I had cases recover and they seemed to be extremely bad cases—animals that I thought would die. They presented all the symptoms of an aggravated attack, an attack which apparently would lead to a fatal termination, and still they would recover. Then, again, other cases which would not appear so bad would terminate fatally. Now, identically the same can be said of those cases which I treated with charcoal. Cases died which would have recovered had the charcoal possessed the powers with which it was credited. No fatal symptoms nor fatal complications had presented themselves until two and three hours had elapsed after charcoal had been administered. If charcoal had performed its proper action, why did my cases, not those that had lesions other than those of rupture, present lesions of rupture upon post-mortem examination, if charcoal had performed the action which was ascribed to it? If charcoal absorbed several times its weight of gas and my patient died after having received two pounds of it, then that which I gave must have been hoodood. I do not know just now how much volume is in an ounce of gas, but I do know that it is considerable. Now, if charcoal such as we prescribe will absorb several times its weight of gas, then sixteen ounces of charcoal will absorb, to make it small, three times as much or 48 ounces of gas; or, still further, if 3 pounds of charcoal will absorb fifteen times its weight of gas and still both horses die due to shock from ruptured stomachs, then something must be wrong somewhere.

Two cases in particular proved to me the inefficiency of charcoal when employed as an absorbent in the manner in which it is usually administered, and I hope to be pardoned for

entering into them in detail. One was an aged trotting horse. He had become unfastened and eaten one half bushel of green corn; from the time of sickness to the period of beginning treatment was about forty minutes. I tapped him immediately, much against the owner's wishes. As other treatment I gave him charcoal; the amount which he received was two pounds. Some idea of the severity of the attack can be had when I state that it required about two hours to give him this quantity. The last time I tapped him as much gas escaped as at the first operation. The owner became dissatisfied and so was I at the progress his horse was making. He unceremoniously dismissed me, another veterinarian was called, who immediately gave him linseed oil one quart, chloroform \mathfrak{z} iii, aromatic spirits of ammonia \mathfrak{z} iii; result, death one hour after. Post-mortem examination, pulmonary medication too heroic; the major portion of the drench was in the bronchial tubes; stomach presented an incomplete rupture; the gastric peritoneum was the only structure which held the organ intact and had the animal lived long enough I have every reason to believe that the rupture would have been complete. The second case was owned by a physician and I think it was for that reason that I gave him charcoal. He was a believer in the efficacy of it; I was not, although I gave it. On account of working hard the groom gave the horse a double quantity of oats. He developed an attack of acute gastric indigestion one half hour afterwards. Death occurred five hours after developing the attack. With other treatment which I considered appropriate at the time I gave him one pound and a half of vegetable charcoal. I must confess I saw positively no effect from its use. The post-mortem examination revealed a complete rupture of the stomach over its greater curvature about eight inches long and running from right to left. That part of the organ which remained intact was empty. This result has convinced the owner of the uselessness of charcoal when administered in the manner in which it was. I might add that since then I had a case which to all appearances was as bad as the last mentioned, owned by

the same gentleman, caused in the same way, but treated differently, which did not terminate fatally. I think that I can safely state that the owner's opinion of charcoal has changed considerably. Still, I have heard prominent and successful practitioners say that they had cases in which the gas generated as rapidly as it was absorbed by the charcoal.

Practitioners that have employed hundreds of pounds in practice, gentlemen who are shrewd observers, careful, conservative and conscientious, would have me believe that a horse would generate three times as much gas as charcoal would absorb. Others that it would during fermentation evolve fifteen times as much gas as would charcoal by its affinity take to itself. If these things be true the deductions would be as follows: A horse would be an animated gas reservoir, a walking, rolling, kicking and struggling gas generator, an honest and faithful gas tank. I could not understand these things, I was either badly twisted or they were wrong. The authorities either knew that charcoal does not, would not and could not absorb gases under certain conditions, and failed to state the fact, for I have not found it stated in all the works which I have read on the subject, or they simply wished to have us find the reason why.

Charcoal by its selective affinity and its powers to absorb gases is described as an absorbent. It will by that power which it possesses and which is inherent in itself perform this action; it will absorb gas; it is one of the best absorbents of gas that is known. But there are conditions or states in which charcoal can be and is absolutely useless as an absorbent, and I think I can prove to your satisfaction that charcoal as we give it is positively useless, and can have no absorbing power whatever. It simply and positively has no absorbing power.

Charcoal is not very obliging, it does not wait for us to employ it and then perform its chemical action, it is not automatic, we must do more than press the button. We must heat it, we must drive off all those gases which it has already absorbed before any benefit can be derived from its use. The arguments

sustaining my contention are these, that charcoal after the heat leaves it, is stored away until needed. It is then powdered, placed in bottle, tin or paper boxes, it makes no difference which, placed in stock until called for. From the time of manufacture to the time of use it may be from one month to one year. We place it in bottles or in our medicine drawers, or perhaps we leave it in its original package, lay it aside in a secluded corner, usually on the floor of our medicine case so that it can be easily reached and still out of the way. Whenever necessary, we take as much as we wish, rush off, usually leaving the box or whatever receptacle it is kept in uncovered until we return. In due time it is placed away for future use.

Now from the time of its manufacture to the time of its employment there is no reason why it will not absorb whatever gases that there are in the surrounding atmosphere it comes in contact with, and if it does not absorb gases that are in an unhealthy atmosphere, it will absorb gases that are in a normal atmosphere, and irrespective of the quality of the gases, whether they be harmless or injurious. The charcoal from the period of its manufacture to the time of its employment has been so surcharged with gaseous matters, supersaturated as it were with the surrounding atmospheric constituents, extra laden with the gaseous elements, that when it is administered for the relief of gaseous distention it cannot, it will not and it does not absorb gases, for the reasons which I have stated, but it will absorb gas if it is properly prepared before employment. It will positively perform its proper chemical action, it will most assuredly come to our relief, and I can honestly state that I have had the most surprising and gratifying results from its use, and I can still add that if our patient has not developed some fatal lesions due to distention our case will terminate favorably.

I could recite case after case in which the results were most astonishing. The action of it was rapid, effectual and positive, but we must first do one thing and that is to drive off all those gases that are in the charcoal. We can do that by heat. Heat the charcoal and when it is sufficiently cool to handle place in

capsules as quickly as possible and give immediately. The quantity which I usually give is four ounces. A very neat way to give it and also to have it ready for immediate use is to heat the charcoal until red hot, fill capsules, cover them, place in wide-mouthed bottles, cover tops of capsules with cotton so as to prevent caps from coming off while being carried, cork bottles securely, seal with wax and store away in a dry place for future use. The bottle must be hermetically sealed.

To those wishing to prove for themselves the correctness of my views by a personal comparison and practical test, I will simply state that if they will collect any gas in a glass retort, place a piece of charcoal in the retort and note the result, I doubt little if any gas will be absorbed by the charcoal, the amount depending upon the freshness of the charcoal; now heat the same piece of charcoal, place in the retort with gas and note the result. I hardly think any gas will remain in the retort. I have experimented further, but this experiment will be sufficient to establish my claim. It is not only necessary for us to heat the charcoal until it is too hot to handle, we *must* heat it till *red* hot, allow time to sufficiently cool, place in capsules, cork them, and in a very short time the internal heat will pass off so that it can be given. Still, if it were possible for us to give it in the red-hot state the action would be still more positive and rapid, for in the cooling the charcoal will absorb the gases that are in a normal atmosphere as well as in an abnormal atmosphere. The object in heating it is to drive off all those gases that are in the charcoal so that it will be as devoid of gaseous matters as it is possible to have it. It makes no difference what the gases are that are in it, for the less gas it has in its structure the more will it absorb, and *vice versa*. However, I do not think it advisable for us to administer it in the red-hot state, especially if the owner be present and our case terminate fatally, for the capsule might dissolve in the pharynx and with expiration the animal will exhale sparks of fire, and if the latter takes place the probabilities are that we would have to defend a suit for damages.

ADVANTAGES OF ACTIVE MEMBERSHIP IN A VETERINARY ASSOCIATION.

BY DR. S. STEWART, KANSAS CITY, KANSAS.

Read before the Missouri Valley Veterinary Medical Association, Oct. 5, 1898.

A veterinarian naturally communicates his thoughts concerning his professional labors to some one or more persons with whom he mingles, detailing his successes, discoveries and difficulties; also accepts and applies suggestions from such persons. If a layman rather than a veterinarian be such confidant, it is doubtful that he will be greatly benefited by such communications, not having the needful professional training to comprehend it, nor are his suggestions likely to have much professional value. Quite different must be the results if this converse be with veterinarians. Association supplies the opportunities for giving and receiving that knowledge which makes one strong in his chosen profession.

It is rarely indeed that a man is found who rightly estimates his own talents. If he be a pessimist he will mistrust that his capabilities are not sufficient to render good service, that he cannot perform a surgical operation as successfully and as deftly as another surgeon with whom he competes, that he cannot state his ideas as clearly and as intelligently as his colleague in another city. On the other hand, the optimist is wont to conclude that he has accomplished wondrous successes where others would probably have failed, and what he does not know concerning the medical or surgical art is not to be learned from his neighbor. By association for the discussion of professional topics veterinarians find opportunity to discover each his own abilities, as well as that of others. Each finds that his talents are neither so mean nor so great that he cannot both teach the most erudite and learn from those whose opportunities have not been all they may have desired.

It is very helpful to most men to learn that they do not alone possess the sum total of veterinary wisdom in their community, while the overmodest and timid are materially strength-

ened upon finding that their knowledge or method is meritorious and compares favorably with that of others. While each discovers in part his own shortcomings he learns that his associate veterinarians are very human, just like himself, having much to learn yet something to contribute to the mutual advancement of all.

That our beloved profession is in an active, growing state must be patent to every veterinarian, and if he would keep apace he must utilize every facility for acquiring information, not the least valuable of which (I believe the most valuable) is the veterinary association. None of us have time to observe everything, test every remedy, study out and determine every disease or condition. Each may make some observations of professional value, determine the efficiency of some special medicament or plan of treatment, discover the cause and nature of some disease, and by communicating what he has learned to his associates he contributes to the knowledge of others to their mutual advantage. If his contribution be supplied to the veterinary journals for publication the profession at large is benefitted.

If it happens that one's observations are incomplete or one's methods of investigation faulty, and wrong conclusions deduced, he may be set aright through friendly criticism of his methods or deductions, by those associated with him and who will extend personal interest and sympathy in his efforts to arrive at the more complete understanding of the subject of his study. Let me illustrate this point: We may have read in the journals or heard some veterinarian say that it now seems probable that the very common, yet intractable disease of cattle generally known as milk fever or parturient apoplexy, is dependent upon a micro-organismal infection of the udder, and a fairly successful treatment consists of the local application of a solution of iodide of potassium to the udder by injection through the teats. I may apply the remedy in the next ten cases and have a death rate of 60 per cent. Naturally my conclusion will be that the treatment is no more successful than that employed in former cases, and my opinion will be quite strong that

the asserted cause of the disease is erroneous. Two or more of you may have tried the same remedy and have been very successful with it, saving all your cases. One will present the subject in the form of a paper before the association. By the discussion of this paper I will be able to discover that my method was faulty and hence my failures and my erroneous opinion. He who attends the associations and who takes an active part in the proceedings is the one who grows with his profession and helps to place his profession on a higher plane; who lives up to his opportunities and best serves his community; who enlarges his capacity for relieving the ills of animals entrusted to his care and correspondingly increases his revenues.

The veterinarian who says to himself, I will open an office in this place; I will post my sign and let the people know that I am prepared to look after their sick animals better than others are doing; I will not rob them of unearned fees like others are reported to have done; I will not resort to such unscrupulous methods it is said others do; I will attend strictly to my own affairs, the getting of clients and dollars, and will have nothing to do with other veterinarians, as they doubtless are quacks; this veterinarian will probably find that business does not hastily seek out the self-announced honest practitioner; that competitors continue to have clients and apparently do a thriving business, and if he will but study himself he will find a large development of sordid selfishness with a tendency to contribute to the malignant reports concerning his competitors, and that he is even resorting to methods which he at first condemned. If this veterinarian but takes the opposite course and courts the acquaintance of neighboring veterinarians and associates with them for the discussion of professional topics and mutual interests, he will find they are not such illiterate and professional monsters that irresponsible and misguided persons have pictured them to be. He will doubtless find they are applying their professional knowledge with the hope of best results, and are endeavoring to obtain an honest living, as that term is usually understood. If they have come short of maintaining the highest

ideals of professional practice, it is largely due to lack of conviction and perhaps perception of the best ideals and best practical ethical procedure, due to lack of a common understanding among the several veterinarians in a community as to what rules should guide them in their relations to each other and to the public. It is only by association that wholesome professional practice is established and maintained.

The well-qualified veterinarians most keenly appreciate the losses and disappointments suffered by the public through confidence placed in the claims of untrained, uneducated, designing persons who advertise to be skilled veterinarians and are entrusted with the medical care of the favorite horse, the much-needed cow, or the highly-prized dog. They exact large fees for valueless service and lead the uninformed to underestimate the merits and worth of the competent practitioner. Laws restraining the incompetent practitioner and the fraudulent pretender should be enacted for the protection alike of the public and the profession. Such legislation cannot be secured until the subject is agitated by those most interested, and suitable bills framed and their passage secured through the intelligent, well-directed efforts of veterinarians who have studied the problem and best comprehend the provisions of law which will accomplish the end sought. It is only by association that veterinarians can reach a mutual understanding and secure concerted action for the procurement of legislation regulating veterinary practice, or promote the cause of veterinary sanitary regulations in municipalities and States.

It is an old truism, handed down from past ages, that it is not meet that man should be alone. While this truism expresses a factor inherent in man as a social being, it is also true relative to his vocation, especially if it be a profession. He is indebted to the past for that accumulated stock of knowledge wrought out of experience and patient observation, to which he has had access and upon which he has so largely and freely drawn, and in return for which he is under moral obligation to add what he may to this general fund of knowledge for the use of coming

generations. Organization of individuals for the advancement of any particular profession is one of the best means for accomplishing definite progress, and has the advantage of imparting stimulation to latent powers and talents which might otherwise remain dormant and sterile.

The veterinary profession is not different from other professions in relation to this general principle. The veterinarian can work to better purpose and to nobler end if he be encouraged and stimulated by the co-operation and sympathy of his fellows. Association with others having the same vocation develops and strengthens the bonds of brotherhood; tends toward a larger conception of professional duty and amenity; gives incentive to study and scientific reflection; encourages honesty of purpose, better business methods, manliness and self-respect; affords a higher quality of companionship and that attrition, that intellectual friction, which leads to better thinking and a more perfect application of veterinary science, and provides an intelligent, forceful body to work for higher and better sanitary and veterinary practice regulations.

[WRITTEN SPECIALLY FOR THE AMERICAN VETERINARY REVIEW.]

THE USE OF IODINE IN INFLAMMATIONS OF THE EYEBALL.

BY JOHN LOCKWOOD, NATIONAL VETERINARY HOSPITAL, WASHINGTON,
D. C.

Whether from its specific action upon those conditions which are present in glaucoma and periodic ophthalmia, or from its production of external irritation and consequent external pressure upon the eyeball, by which means the severe intra-ocular tension appears to be speedily overcome, iodine (in the form of a compound aqueous solution) appears to have an immediately beneficial effect in internal ophthalmia. But as its action is perhaps as much dependent upon the method of administration as upon its own therapeutic value, I will give an account of the manner in which I have employed the solution. To one drachm

of the officinal compound aqueous solution of iodine I add one drachm of distilled water and inject it hypodermically in the centre of the supra-orbital forameu. I have found that one such application is all-sufficient to obtain the desired effect, and no after treatment has been found necessary. The result is soon apparent. With the exception in some cases of a continued closure of the eyelid for a day or two, which, however, is not due to photophobia (as the light is soon tolerated), but to palpebral œdema, the acute symptoms quickly disappear; and should it be a first attack, the structure appears to have regained its normal condition in a few days.

In those cases which have recurred several times an injection of iodine, if done early, and before the appearance of hypopyon, will arrest the further progress of destructive inflammation. After trying the various stereotyped methods of therapy, I began experimenting in a new field, and as a result can only testify having been rewarded with very astonishing and lasting benefits by this discovery. Through your valuable medium I wish to bring it before the notice of the profession, and hope to hear some further account of its use. I have only to add that I have always considered it necessary to ascertain whether the case presented was one in which such a procedure was contra-indicated, as in abscess or ulcer of the cornea, or in injuries of the corneal surface which may proceed to ulcer, etc.

THE USE OF ESERINE IN ACUTE INDIGESTION.

BY DR. E. E. BITTLES.

A Paper read before the late meeting of the Pennsylvania Veterinary Medical Association.

Veterinarians differ greatly as to the action and use of eserine, some claiming it worthless, others a great cure-all.

I think the great difference of opinion is due to some never trying it until they are positive the patient must succumb. Some giving too large and others too small doses, faulty preparations, etc.

Of the various preparations of eserine the sulphate is prefer-

able, and should always be obtained in sealed glass tubes of two grs. each, as they are easily carried, and one tube is sufficient for any one case; seldom using more than one-half of it, as it is not advisable to repeat the dose in less than three or four hours. In preparing the solution use 1 drachm of distilled water to 1 gr. of eserine.

One drachm of the above solution used hypodermically is a safe and usually effective dose for an animal of 1000 lbs. The solution will keep for several days if kept in a well stoppered bottle in a dark place.

I have obtained the best results from its use in those cases of acute indigestion where the bowels and stomach are greatly distended with gas with no audible intestinal sound. The entire tract is temporarily paralyzed from the great strain caused by the pressure of the gases and space is at a premium in those parts, the stomach being full to overflowing.

Bearing this in mind and drenches being out of the question we resort to a more modern treatment and give hypodermically 1 gr. of eserine, which will increase the peristaltic action of the bowels and carry off the gases.

To prevent further formation of gas I have never found anything better than 1 oz. pulverized ginger, 1 drachm beechwood creosote, and 2 drachms chloroform, given in capsules. Repeat the dose in half an hour if necessary. If the breathing is labored and danger of suffocation would use the trocar.

In all stages of bowel trouble caused by the formation of gas I have never found anything to equal eserine. Barium chloride has about the same action, but is more difficult to administer on account of its being very irritable; also following its use in some cases we have paralysis causing death.

In cases of sub-acute indigestion, impaction, constipation or any of those conditions of torpidity where the symptoms are not urgent I prefer aloes, and if they do not give relief in 12 or 15 hours would use eserine, which will cause the aloetic purge to work off nicely. I find eserine does not give relief in those cases in the first stages.

My experience with eserine in parturient apoplexy has been that it helped them along to the place where so many of those cases go—the boneyard.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

EXTENSIVE INJURIES TO FACIAL AND CRANIAL BONES, WITH RECOVERY.

By D. J. HALLORAN, M. D. C., Oconto, Wis.

Thursday evening, July 28, I was called four miles into the country, and upon arriving I found that a horse had run away and came in contact with the outer guard of a mowing machine, with the cutting bar standing perpendicular, the guard penetrating the frontal bone on the right side and close to the median line, breaking the superior turbinated bone and entering the cribriform plate of the ethmoid. The horse presumably forcibly raised his head, and pulled a part of the cribriform bone downward, exposing the brain and plowing through the frontal, nasal, superior maxillary and lachrymal bones, extending downward as far as the infra-orbital foramen, then tearing the skin and underlying soft tissues, and terminating at the nasal opening. Making an unfavorable prognosis, and the owner wishing to give the animal any chance that he might have, I proceeded to remove all fragments of bone. I removed eight pieces varying in size from $1\frac{1}{2}$ in. square downward. I cleansed the wound, and, filling the same with antiseptic gauze and sewing the skin over it, the head presented a fairly good appearance. Before leaving I observed slight nasal hæmorrhage, but thinking it of little importance I left, requesting the owner, that, if the horse lived for eight days, to send him to my hospital. Saturday, July 30, I was informed that the hæmorrhage did not cease. Upon arriving at the farm I found the horse very weak from loss of blood; the visible membranes pale. I at once proceeded to arrest the hæmorrhage, which yielded readily. I should have added that before that the wound communicated with the buccal cavity by separating the soft tissue from the bone and opening at the second molar tooth. One peculiar fact is that the horse at no time refused food or drink. Nine days after the accident he was brought to

my hospital, where I gave him my special attention, he making a good recovery. About Aug. 20, an abscess appeared on the left side of the median line on a level with the orbital arch. I liberated a small amount of pus and from which the discharge continued, and on Sept. 12 the horse was returned. Upon exploring I discovered a piece of loose bone, which I removed. There was also unmistakable evidence that at the time of the accident there had been a transverse fracture of the frontal bone, including the orbital arch. The horse has been regularly at work since Oct. 1, and only a small scar remains, together with a small elongated osseous deposit, marking the location of the last mentioned fracture.

I make this report simply to show to what extent an animal may be injured and recover his former usefulness.

SPRINGHALT AND METATARSAL TENOTOMY.

By WM. N. COLMAN, D. V. S., Sterling, Rice Co., Kansas.

As a point in the statistical argument in favor of this mode of treatment of the disease known as springhalt, I have followed the directions laid down by Degivé on seven head of horses. I have performed the division of the tendon of the lateral extensor of the phalanges on these horses with springhalt in various degrees, and have obtained the following results: Four recovered completely, and the other three showed a very satisfactory improvement—almost a complete recovery. Metatarsal tenotomy is a simple and harmless operation, and I think that it offers sufficient chances for success to encourage its performance and to justify its adoption into the domain of common practice, if guided by the skill of a qualified man. I hope to hear from some of my brothers of the profession on this operation.

TREATMENT OF OPEN JOINT BY ANTISEPTIC BLISTERING.*

By DR. J. CURTIS MICHENER, Colmar, Pa.

Having reported a few cases of open joint, treated with an antiseptic blister, would like to add one more. On the 11th of last August, Mr. A. G. Haldeman's high-spirited horse of Line Lexington was being bedded by his twelve-year-old son, who pricked the horse at the fetlock. He made a bound forward and gave a violent kick, running a prong into the postero-exterior part of the thigh, the end of the handle striking in corner of the stall. The fork remaining in, the horse continued kick-

* Reported to late meeting Pennsylvania State Veterinary Medical Association.

ing and surging about until the handle was broken into pieces and the prong driven in its full length. It came through on the inside of the joint, just beneath the patella. Great excitement in the village, the horse squealing, kicking, throwing himself down, and the blood flying all around. After getting the horse somewhat quieted and secured, a stalwart fellow pulled out the fork, having to make the second effort and use his full strength. The prong was bent in different places and directions. On arriving two hours later, found an ugly lacerated wound on outside of thigh three inches wide and into the bone, and having a pocket three inches deep. Inside of joint showed a small puncture where point of prong came through. The horse was suffering intensely, keeping the injured limb in constant motion. After cleansing wound and limb, rubbed in blister ointment, thoroughly over the entire joint, and also plastered the exterior wound full of the same (getting severely criticised for so doing). Next morning horse stood firmly upon the injured limb, breathing naturally and feeding well. Rubbed on more ointment, although the blister was acting freely and the leg already enormously swollen. The swelling kept very tense for three days, but the horse stood and trod firmly. Gave him much walking exercise (for which I was again severely criticised). On the fourth day the outside wound commenced to discharge a healthy pus. It was syringed twice daily with chloride of zinc lotion, ten grains to the ounce, and the whole leg bathed frequently with vinegar and cold water, equal parts. Upon the twelfth day the leg had resumed its natural size, and upon the nineteenth day the horse was put to work, the wound having healed and lameness all gone.

In justice to some of the Dutch villagers, will state that the *fork* was carefully greased and put in a dry place *before I arrived*.

CENTRAL RUPTURE OF THE VAGINA.*

By W. J. MARTIN, V. S., Kankakee, Ill.

The patient, a bay mare, aged five years, of the trotting breed variety, was brought to my infirmary on August 16 of the present year, suffering from a central rupture of the perineo-vaginal walls, caused by a difficult parturition some four months previous. In driving, and even when standing still, the mare would pass gas and a muco-purulent pus from the vagina, which, falling upon her tail and hocks, presented a disgusting

* Read before the Illinois State Vet. Med. Ass'n, Nov. 16, 1898.

appearance. As the rupture did not extend entirely through the fibres of the sphincter ani, it was decided to endeavor to close the laceration.

The mare was placed upon a light diet for several days, the laceration was washed several times a day with a formalin solution, 10 per cent. At the end of this régime, the mare was placed upon the operating table and the field of operation again made aseptic; the hands and instruments were washed thoroughly in the same solution. On examination it was found that there was marked atrophy of the left posterior constrictor muscle of the vulva, which caused the lip of the vulva on that side to drop downward about one inch below its fellow. To remedy this defect, an incision was carried through the vulva of the left side between the mucous membrane of the vulva and the remnants of the atrophied constrictor, which allowed of the raising of the tissues remaining up to corresponding level with its fellow of the opposite side. The edges of the perineo-vaginal walls were now deeply pared, with a thin, straight-bladed bistoury, taking care to remove all mucous membrane from between the edges which it was desired to unite. After thorough paring of the edges, a strong curved needle, armed with a double silk ligature, was passed through each lip of the rent, about one inch back from the border of the torn edges, and firmly tied, after even apposition of the edges of the rent had been obtained. The sutures were inserted about one-half of an inch apart and five sutures were inserted. All blood clots were then washed away, both in the vulva and externally, and the parts were then sprayed with a 4 per cent. solution of formalin.

The after treatment consisted of flushing out the vagina three times a day with a weak solution of formalin, then spraying the external wound with a 4 per cent. solution of the same drug. The diet consisted of a small amount of hay three times a day, with an allowance of bran at each meal. About one quart of clear water was injected into the rectum three times a day. On the eighth day the sutures were removed, beginning from below upwards; and upon manipulation it was found that the rent had firmly united. I report this case more especially for the benefit of the younger members of the profession, to show that partial or even completed rupture of the perinio-vaginal tissues may be successfully treated when strict antiseptic precautions are observed in spite of the discouraging manner in which this lesion is treated of in our best works on veterinary surgery.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By W. V. BIESER, D. V. S., New York City.

CYSTS IN THE RECTUM.—A horse's owner consulted author concerning difficult defecation on the animal's part; other veterinarians had told him without making any rectal examination at all that matters would right themselves in time. Author promised to visit the animal in a few days, but an attack of colic necessitated immediate attention of the author. By rectal examination a pear-shaped cyst the size of a fist was found, the cause of the difficult defecation. Incision and removal of the cyst cured the trouble. These examples of cysts show the need of careful manual examination in all diseases of the rectum or vagina. Don't make an examination by eyesight or from symptoms, but introduce by all means manual examination.—(*Berl. Thierärzt. Woch.*)

CYSTS OF THE VAGINA.—A cow had for several months a swelling at the lower end of the vagina, rosy red and of the size of an apple. At a distance it looked like prolapsus vaginae, and was especially noticeable when the cow lay down. But vaginal examination elicited the fact that it was a retention cyst accompanied by two smaller ones situated just in front of it, all three of which were easily removed by the knife.—(*Berl. Thierärzt. Woch.*)

POLYPUS OF THE RECTUM.—The author was called to see a foal said to have rectal prolaps. Examination showed a pedunculated swelling the size of an apple which had been expressed through the anal opening; the pedicle was attached (as shown by manual examination) about 13 cm. inside the anal opening. A ligature was placed about the pedicle and by graduated and alternate torsion and traction the pedicle, together with a piece of the mucous membrane of the rectum, was removed by the aid of scissors. A quick cure resulted.—(*Berl. Thierärzt. Woch.*)

ŒSOPHAGOTOMY IN A COW.—The author found a cow suffering from symptoms of foreign body in the œsophagus. Efforts at removal failed. Having no probang resolved on œsophagotomy. I would suggest that the foreign body (a large potato the size of a fist in this case) be removed as in this case by a corkscrew. I recommend this because (1st) the opening in the

gullet need not be as large as would otherwise be the case, and (2d) because the muscular separation is of the smallest possible dimension, allowing of the greatest amount of recontraction of muscle after operation. I sewed up the skin only. A fistula resulted for twelve days. In five weeks complete cure was established. During treatment give only soft feed and no hay whatever for the first few days.—(*Berl. Thierärzt. Woch.*)

INFLUENZA IN THE HORSE AT CAPE COLONY.—In Cape Colony an epizoötic malady exists characterized by catarrhal inflammation of the upper air passages and intense nervous depression. The malady begins with a chill and frequent dry, short cough. The trachea and larynx are involved, but there is no especial swelling of the glands of the neck; there is high fever, intense depression with hanging of the head; pulse 80–100 per minute, respiration increased; there may and may not be a nasal discharge; appetite diminished; lids swollen and conjunctiva congested; lachrymation; the horse is unsteady in his gait. In mild cases the fever subsides in a few days and convalescence occurs. But in many cases diarrhœa and bowel inflammation set in, occasionally laminitis. Other complications are bronchitis and pneumonia, resulting from the pulmonary congestion. Rheumatism frequently occurs in the above mentioned epidemic. This rare complication manifests itself by pain and stiffness and swelling of the muscles and tendons near the joints. These swellings, also present frequently in the muscle layers of the chest and vaginal regions, are attributed by the author to the cardiac weakness present in this disease. Independently of rheumatism, however, a stiff gait often manifests itself due entirely to the elimination of motion from the swelling of muscles. The commonest sequela at Cape Colony to influenza was morbus maculosus. The treatment calls for good nursing in hygienic stalls and especially for good dry straw. The high mortality at Cape Colony must be ascribed to carelessness in the management of the stalls.—(*Berl. Thierärzt. Woch.*)

ENGLISH REVIEW.

STRANGE CAUSE OF RUPTURED UTERUS [*By A. T. Hutton*].—At the post-mortem of a mare in foal, which was found staggering in a field early in the morning, having been seen the previous evening apparently in perfect health, and which had died shortly after, extensive peritonitis was found, due to a rup-

ture of the uterus made by the lower end of the upper portion of a fractured metacarpus of the foetus. The fracture had evidently taken place some time previously, as there was an attempt at a rectangular union of the broken bone.—(*Vet. Record.*)

TUMOR ON THE LOWER JAW [*By W. M. Scott*].—A case of osteo. chondroma or chondro-sarcoma (?) is so reported by the author, principally on account of its size and of peculiar location. The horse had had a small swelling on the lower jaw and under the incisor teeth, which had begun its growth after the extraction of one or two teeth of the same jaw. It had increased to enormous size. The surface was smooth and glistening, slightly cyanotic in patches. Its covering was a continuation of the mucous membrane, painless to the touch, but very vascular. The tumor did not seem to interfere much with the prehension of food. It is not stated that treatment was resorted to.—(*Vet. Record.*)

EQUINE ACTINOMYCOSIS [*By A. L. Farrant, M. R. C. V. S.*].—The case of a ten-year old cob, which, presenting difficulty in swallowing food, was brought to the attention of the author, who found the tongue enlarged and having on its side a tumor as big as a walnut. Wharton's duct was enlarged and completely blocked up. With a silver probe introduced into it, the flow of saliva was re-established, the tumor on the tongue was incised and on examination proved actinomycotic in nature. Besides external application on the submaxillary, laryngeal and parotid regions, gargles of carbolic and boric acids, a treatment of iodide of potassium was prescribed and followed by recovery in about three weeks.—(*Vet. Record.*)

FISTULA OF STENO'S DUCT [*By A. L. Farrant, M. R. C. V. S.*].—A mare had a wound on the salivary duct, on the side of the face, from which saliva escaped. The ends of the duct were about an inch apart, and several attempts at treatment failed, viz., sutures, glass tube into the canal, metallic plate in the wound and the skin drawn tight over it with suture and coating of collodion. At last, as the external wound seemed to show a natural tendency to close, a seton was passed through the cheek. When, a week later, the internal opening seemed likely to remain permanent, the external wound was fine sutured and painted with collodion. The recovery was complete up to two months later, when a slight external discharge occurred again. The tract was syringed out with solution of chloride of zinc and plastered over daily. In a few days all was healed and the mare has remained well ever since.—(*Vet. Record.*)

A REMARKABLE CASE.—Under this heading Mr. C. A. Powell, M. R. C. V. S., records the case of a mare which in 1893 was supposed to be about foaling. She did not that day, nor for a long time afterwards. She was put to work and never showed signs of sickness or of pregnancy again until September, 1898, when she was taken with an attack of colic and died. At the post-mortem it was found that the "womb was shrivelled up and the foal (a fully developed one, weighing about a hundred-weight) laid up close to the stomach, the hind part touching the diaphragm, its hind and fore legs doubled beneath it, with its head lying on its chest between the forelegs. It was surrounded by its membranes, which were intact and easily separated from it. The foal was well preserved, its hairs being as tight as in life; its flesh was firm and on being cut rather yellow in color and there was not the least appearance of either putrefaction or mummification."—(*Vet. Record.*)

MELANOTIC TUMOR IN A COW [*By J. Young, M.R.C.V.S.*].—A Jersey cow had a tumor growing on the right flank, situated about four inches below the ilium, and when the cow was milked it used to rest on the head of the person milking. It did not otherwise interfere with general health. Its extraction was decided upon and done partly with the ecraseur and partly with clam and sharpred-hot iron. After treatment, antiseptic dressings. The tumor was almost circular, its circumference measured 18 inches and weighed nearly four pounds. It was a pigmented, fibrous tumor or melanotic fibroma.—(*Vet. Journ.*)

TUBERCULOUS TESTICLE IN A BULL [*By A. S. Laurie, M.R.C.V.S.*].—At first examination the animal had been suspected of suffering with orchitis and received the treatment indicated. Notwithstanding saline aperient and anodyne liniment, the animal grew worse, the testicle enlarged, and the general condition suffered. Castration was performed with difficulty on the diseased side on account of adhesion and of the size of the organ. The healthy testicle was removed without trouble. The animal made a fast recovery and at once began to improve. He will soon be fit for the butcher. The diseased testicle weighed four pounds. Microscopic examination revealed its tuberculous nature.—(*Vet. Journ.*)

FRENCH REVIEW.

EXTRACTION OF A GLASS TUBE FROM THE THORACIC CAVITY OF A MARE, SUFFERING WITH PLEURISY AND TREATED BY

WASHINGS OF THE PLEURA.—Prof. Cadeac, in the *Journal of Zoötechny*, of the Lyons Veterinary School, relates this very interesting case, which shows that surgical treatment in pleurisy of horses is perfectly justifiable, even with free incision of the pectoral walls. A mare affected with double pleurisy was first treated by punctures on both sides, made at the evident part of the effusion. On one side the effusion became purulent, there was a pleural abscess, which was opened freely, by an incision of 10 centimeters between the seventh and eighth ribs above the spur vein. The pus escaped freely, a drain tube was inserted and held in place by a dressing, and irrigation of antiseptic solutions were made. During one of the washings the extremity of the glass tube used for that purpose broke and could not be removed; notwithstanding which the mare recovered with the exception of a small fistulous tract. When Prof. Cadeac saw the mare she was in perfect condition of health, with only the fistula. He decided to remove the cause of this trouble. He cut the tissues over it, sawed the seventh rib a little above the tract of the fistula, and with care entered a pyogenic cavity, from which the glass tube was extracted. It measured 9 centimeters in length and was five millimeters in diameter. The mare recovered, though it took a long time for the wound, which became fistulous, to heal. It was rebellious to injections of sublimate, to saturated solutions of picric acid, or of tincture of iodine diluted to the third; it only closed after two injections of the pure tincture. The mare was destroyed shortly after on account of a fracture of the right hind leg. At the post-mortem were found an almost complete pleuritic union on the right side, except near the place of the fistula; there was also a little remaining pus; the pleural sac had entirely disappeared.

DYSTOKIA DUE TO A UTERINE FIBROSARCOMA. [*By Mr. Dossat.*].—A cow at term is unable for the first time to deliver her calf, which is dead and partly decomposed. On examination of the uterus the cause of the dystokia is discovered. It is a tumor of the organ, very hard, bosselated, ellipsoid in form, and without adherence to the foetus. It must be removed before the foetus can be extracted. Made loose by careful tearing with the hand, a strong ligature is applied upon it and cut in two pieces, which were, however, too large to be brought out of the uterus. It was necessary to cut several small pieces to extract it. The calf was then removed but not without great difficulty. The growth weighed seven pounds, measured 30 centimeters in length and 18 to 20 in width. It was fibro-sarcomatous in na-

ture. Notwithstanding the painful manipulation to which the animal had been submitted, the recovery was very rapid. The after treatment consisted in antiseptic irrigation, tepid boricated water, at 5 per cent., and internally tonics.—(*Revue Veter.*)

LACTIC ACID AND PYOKTANIN IN THE TREATMENT OF MELANOMA [*By Mr. Bissange*].—Basing his experiments upon what is known in human medicine of the destructive effects of pathological tissues, the author has had recourse to the use of these compounds in the treatment of melanotic tumors, which by their position or their number were not amenable to surgical interference or for those which by their situation interfered with the execution of a function. It is upon that treatment that he relieved a horse that had enormous tumors of the sheath, of the anus and on the tail, one which had a melanotic growth on the point of the shoulder, a stallion which had melanomas of the tail, a mare which had them on the vulva, on the anus and on the tail, etc. His mode of procedure consisted in injecting at various points around the tumors 10 cubic centimeters of a solution of 25 grammes of lactic acid in 75 of sterilized water. A few days after he opens the little abscesses formed at the point of injection and removes the mass, which is isolated by a deep furrow of sloughing tissues. The wound that remains is washed and dressed with pyoktanin after being carefully curetted clean. Though his experiments are few, and have not always given him complete recovery, the author thinks that this treatment is perfectly justified in the cases referred to above.—(*Rec. de Med. Vet.*)

TRAUMATIC TETANUS TREATED WITH ANTITETANIC SERUM—RECOVERY [*By Mr. P. Chenol*].—This case is one of the few recorded in French papers, and on this account deserves attention. The subject was placed under treatment two days after all the symptoms were well developed. He received the first day, 20 grammes of serum, injected into the muscular tissue; subcutaneous injection being impossible on account of the tensity of the skin. This was renewed twice during the day. Same treatment for several days. Improvement noticeable on the second day. By degrees the injections were reduced. Finally recovery. The author resumes his report in saying: The horse taken with traumatic tetanus, and treated only two days after the appearance of the symptoms with antitetanic serum, has required two months to recover completely: during seven consecutive days he received two hundred and sixty grammes of serum, the injection being made into the thickness

of the muscles without leaving any marks. To those who do not care to try intra-cranial serotherapy he recommends intramuscular injections.—(*Rec. de Med. Vet.*) [Will not Professor Nocard tell the author that this case is one of those that recovers without antitetanic serum?—EDIT.]

VILLATE'S SOLUTION AND CARTILAGINOUS QUITTOR [*By P. Dieudonné*].—The treatment of this troublesome affection by injections of Villate's Solution does not enjoy any more the reputation it had years ago, and according to the author this is due to the fact that it is not carried out properly and that the solution is not used as it should be. For Mr. Dieudonné it should be *filtrated* and thus be free from the sulphate of lead that is in suspension. Three indispensable conditions must be filled: (1) Watch the case yourself and make the injection yourself; (2) use a syringe in good condition and thoroughly clean; (3) use filtrated Villate's Solution made of sulphate of copper and of zinc, of each 64 grammes; Goulard's extract, 1.25 grammes; vinegar, 1000 grammes. The foot must be properly pared and left unshod, the fistulas are carefully probed once to examine their course and depth; 4, 5 or 6 syringefuls are pushed into the tracts every three hours for a few days, until when, the secretion being altered or reduced, the injections are gradually diminished and stopped. After fifteen days at the most, the animal is cured. If such is the case, it is far superior to all forms of treatment, including the operation which demands from four to six weeks, and even sometimes does not cure.—(*Rec. de Med. Vet.*)

BELGIAN REVIEW.

DYSTOKIA IN A COW DUE TO TORSION OF THE FŒTAL SPINE [*By M. Nizel*].—This unusual case was brought to a successful termination only after incision of the fœtal abdomen, removal of the intestinal organs and embryotomy of the left hind leg. The presentation was ventral without the presence of the extremities. By exploration it was observed that the enormous left flank of the fœtus was protruding. Above, the croup lying transversely, had in its middle and between the two iliums a hard growth (stump of the tail); on the right, one hind leg (the left) bent and with the hock resting in a uterine *cul de sac* formed by the anterior legs. The left hind was secured and amputated; the abdomen of the fœtus freely opened, the abdominal organs removed, and after much labor the right

hind leg secured and by violent tractions, made in different directions, the calf was extracted. As soon as it dropped from the vulva, the entire body folded in two as the leaves of a new book recently opened. The cause of the trouble was a right lateral complete and a congenital torsion of the spine with presentation of the left flank.—(*Annales de Belge.*)

PERSISTENCY OF THE DUCTUS ARTERIOSUS IN A DOG [*By Mr. E. Lienaux*].—The obliteration of the ductus arteriosus is so complete at birth that at that time the arterial canal is replaced by a fibro-elastic band which unites the two principal aortic trunks, the pulmonary artery and the aorta. The persistency of the communication is very uncommon and has given rise to functional and anatomical disturbances in a young dog, five to six months old, which ended in death. The symptoms observed were: general loss of strength, absolute anorexia, repeated cough, no expectoration, accelerated breathing, with marked difficult inspiration, low dullness on percussion above the heart, normal sound anywhere else, cracking sounds in the lungs; hard whistling sound heard with the systole of the heart, femoral pulses very strong, venous pulse to the jugular with the ventricular systole. Temperature 40.1°. Post-mortem: Heart is large, left ventricle thickened, right ventricle dilated and also hypertrophied; tricuspid opening enlarged, valve intact; pulmonary opening too narrow. The aorta and pulmonary arteries communicated by the ductus arteriosus, which is as big as the pulmonary artery. Its walls are thicker and harder; it is inverted obliquely on the aortic trunk. The aorta is largely dilated from its origin to above the insertion of the ductus arteriosus, then it suddenly contracts and assumes its normal dimensions. It is a true aneurism, with thin but yet stiff walls.—(*Annales de Belge.*)

RUPTURE OF THE PERFORATING TENDON IN A SADDLE HORSE [*By Mr. F. Hendrickx*].—A saddle horse, seven years old, carrying a heavy man on his back, was submitted for an hour to a rapid gait. Returned to the stable, he presented nothing abnormal except a little stiffness of the left hind leg. The next day the left hind fetlock was swollen and very painful; the swelling was localized to the posterior part of the joint. Suspecting a synovitis of the great sesamoid sheath, treatment was applied and improvement followed, when a few days later suppuration became manifest. This was soon complicated with laminitis of the right hind foot. Notwithstanding the treatment, general disturbances became more marked, excessive

pain, loss of appetite, raising of temperature, formation of abscesses and soon there is dropping of the fetlock, the posterior face of the joint touches the ground, the toe is elevated and the pathognomonic symptoms of rupture of the perforans are manifest. The horse is destroyed. At the post-mortem were found: Extensive suppurative synovitis, infiltration of the perforatus tendon and complete rupture of the perforans above the sesamoid pulley. Evidently after the excessive work asked of the horse there had been only a stretching of the perforans, which was followed by synovitis and as a consequence of the soreness and difficulty of standing on the right leg because of the laminitis, the exaggerated work demanded of the left leg had brought about the total rupture of the perforans.—(*Annales de Belge.*)

LATE MANIFESTATIONS OF GLANDERS IN A HORSE APPARENTLY CURED [*By Mr. F. Hendrickx*].—The conclusions of the author are that one must be very prudent before allowing a horse to resume his work, after having presented symptoms of glanders which is apparently cured. It ought to be kept under careful watching for a long time, and in all cases not to be allowed to go free as long as there is discharge from the nose. The case is this: A ten-year-old horse from a stable infected with glanders, becomes lame with a keraphylocele; he is operated upon; a few days afterwards he presents suspicious glands and scarcely any discharge; there are no chancres. Malleined, he has a raising of temperature of 2.3° , and local manifestations at the point of injection. Twelve days after, second injection of malleine, there is reaction, but less serious. Eighteen days later, third injection, raising of temperature of 0.9° only, no local reaction. Twenty-four days after last injection, negative result. During that time the suspicious gland has disappeared. Watched for one year, when he is examined some ten times, he appears in perfect health. Then he loses his appetite, loses flesh, has nasal hæmorrhages and exhibits all the clinical symptoms of glanders. At the post-mortem lesions of glanders of old and recent formation were detected. The author thinks that when the horse was returned to his work he was not entirely cured, and was still carrying glanderous germs, perhaps in very small numbers or much attenuated, but which under special conditions of work, hygiene, etc., multiplied and developed new virulency.—(*Annales de Belge.*)

INTERNATIONAL VETERINARY SURGEONS.

THE SEVENTH CONGRESS AT BADEN-BADEN IN 1899.

The following circular letter is published for the information of American veterinarians, and explains itself :

DEAR SIR:—In accordance with the resolution of the Sixth International Congress of Veterinary Surgeons, held at Berne, the Seventh Congress will take place at Baden-Baden in the year 1899. The veterinary surgeons of Baden are entrusted with the carrying out of the arrangements.

In June, 1896, the undersigned called a preliminary meeting at Stuttgart, which was attended by veterinary surgeons from various European countries. At this meeting a business committee was selected, to be presided over by the undersigned. The committee has received intimation from the Town Council of Baden that rooms for holding the meetings will be placed at the disposal of the Congress, and that various festivities and entertainments will be offered by the town.

The government of Baden will undertake to send invitations to foreign governments.

The chancellor of the empire has granted 10,000 marks (\$2500), the government of Baden 2000 marks (\$500) for the Congress.

The Congress will be held at Baden-Baden in the second week of August, 1899, and will last six days, beginning each morning at nine o'clock.

The official languages will be German, English and French. Means will be provided for the immediate translation of speeches and communications.

For the work of the Congress the following subjects are proposed for discussion :

a. Precautionary measures against the spread of epidemic diseases in consequence of international trade in animals ;

b. The prevention of tuberculosis amongst domestic animals and the use of the flesh and milk of animals suffering from this disease, and connected with this—the latest demands for an effectual meat-inspection ;

c. The prevention of foot- and- mouth disease ;

d. The prevention of swine-fever ;

e. The forwarding of veterinary science especially by the erection of institutions for experiments in diseases and by forming chairs of comparative medicine in colleges for veterinary surgeons ;

f. Conclusion of the work of the drawing-up of a common nomenclature in veterinary medicine ;

g. Official veterinarianism.

According to a careful estimate which has been laid before the government of Baden the costs will be about 28,000 marks. The anatomical section alone will require 2500 marks and all official notices and the reports of the transactions will appear in the three official languages.

In view of these facts the subscription has been fixed at 12 marks (\$3.)

Those gentlemen who have become members and paid the subscription will receive copies of all publications, even if they are unable to be present at the Congress.

In order to interest as many as possible in the Congress the committee has resolved to suggest the formation of sub-committees in all countries.

The first business of these sub-committees would be to call the attention of veterinary surgeons, agriculturists and breeders to the Congress, to induce as many as possible to become members and to collect their subscriptions. The sub-committees, after defraying expenses, should forward the balance of collected monies not later than January 2, 1899, to the "Rheinische Creditbank" in Baden-Baden. The bank will then book the receipts and payments of the Congress and furnish an account of the same.

It is important that the business committee should know by December 1, 1898, how many gentlemen from each country are likely to take part in the Congress.

We should be much gratified if you would give us your opinion as to formation of a sub-committee for America and especially if you would give us the names of those who should be asked to take part in it. Should you consider the formation of a sub-committee impracticable or unadvisable, perhaps you would kindly suggest some other means of attracting a large attendance of your countrymen at the Congress, as perhaps through the mediation of the various veterinary and agricultural societies. We will also gladly give attention to any suggestion in reference to the business programme of the Congress which you may wish to make. Finally we should be greatly obliged if you could obtain the support of the veterinary and other papers interested for the Congress.

The definite programme of the Congress will be forwarded to you in good time.

A local committee in Baden-Baden will undertake arrangements for securing lodgings. We are already enabled to inform those who intend to attend the Congress that they will be able to obtain board and lodging from 6 marks per day and we can assure you that the Congress will be most hospitably received by the beautiful town of Baden-Baden.

Yours very truly, DR. LYDTIN,
Chairman of the Business Committee.

BADEN-BADEN, 25 May, 1898.

ITEMS FROM REVIEW SUBSCRIBERS.

—"I enjoy the REVIEW very much."—*G. C. Kesler, Holly, N. Y.*

—"Continue my subscription, by all means."—*S. R. Craver, Youngstown, Ohio.*

—"I cannot be without my REVIEW."—*J. H. Conover, Flemington, N. J.*

—"Please continue to send the REVIEW, as I would not be without it."—*B. M. Freed, Sharon, Pa.*

—"Best wishes for success of REVIEW, which is doing excellent work."—*James D. Hopkins, Newark, N. J.*

—"Acting on suggestion that each subscriber send another, I enclose check for one year's subscription for Dr. James S. Kelly, South St. Joseph, Mo."—*W. A. Heck, South St. Joseph, Mo.*

—"I appreciate the REVIEW very much, and would not be without it, and think that every veterinarian wishing to keep himself informed should be a subscriber."—*J. W. Riegler, Emmitsburg, Md.*

—"The enrollment at the Kansas City Veterinary College this session is twenty-five regular students, and let me assure you they read the REVIEW with much interest."—*S. Stewart, Dean, Kansas City, Kan.*

—"Veterinary practice seems better, and prospects brighter than for years, and I look for next spring to open up with a business that will make us all glad that we are veterinarians. I enjoy the REVIEW very much."—*J. R. Mitchell, Evansville, Ind.*

—"In response to your suggestion in December REVIEW that each subscriber send you a new one, I enclose an order for \$3, for which kindly mail REVIEW to Dr. H. J. Ackerman, Box 300, Lebanon, N. H., for a year, beginning with December number. I am satisfied that no veterinarian who does any

reading at all can afford to do without your valuable publication. Hope that your circulation may be more than doubled.”—*Herbert S. Perley, Ottawa, Ontario.*

—“I enclose draft for two new subscribers both to begin with January issue: Dr. B. F. Kaupp, 723 W. Eleventh St., Kansas City, Mo., and Dr. S. E. Bennett, Bureau Animal Industry, care Armour & Co., Kansas City, Mo. Shall send several other subscriptions later to begin the new volume with. I am making a strong effort to induce each of our members to Subscribe to a veterinary journal, as I believe them to be one of the most essential factors in maintaining interest in association work.”—*W. A. Heck, South St. Joseph, Mo.*

—“I am very much interested in Prof. Williams’ translation of Schmidt’s article on ‘Parturient Paresis.’ I have had splendid success in three cases of parturient apoplexy, all making good recoveries. I sent to Hausman & Dunn, Chicago, and got a large tube, which I used in the prescribed manner, giving only one injection. Gave aromatic spirits of ammonia and nitrous ether, $\frac{3}{4}$ i each, every four hours, with sodium chloride and magnesium sulphate. Two of the cases went down twenty hours after dropping their calves. I gain new ideas from every issue of your journal.”—*J. B. Caughey, Columbiana, Ohio.*

CORRESPONDENCE.

A CALL TO THE VETERINARIANS OF ILLINOIS.

KANKAKEE, ILL., December 15, 1898.

To the Members of the Profession in Illinois:

GENTLEMEN:—At the last annual meeting of the Illinois State Veterinary Medical Association, held in Chicago, November 16 and 17, 1898, it was decided to again take such action as would secure the passage of a law regulating the practice of veterinary medicine and surgery in this State. With this object in view, it was decided to call upon each and every member of the veterinary profession in this State, to ask of the Senator and Representatives of his district, either by a personal interview or by letter, to give their active aid and support to secure the passage of a just and equitable law that will place the members of the veterinary profession in this State on an equal basis with those of the other learned professions.

The next meeting of the State Association will be held at the Leland Hotel in Springfield, February 15, 1899. All qualified members of the profession in this State, whether members

of the association or not, are cordially invited to attend this meeting and take part in the discussion concerning the best methods of elevating the standard of our calling.

W. J. MARTIN,
Pres. Ills. State Vet. Med. Ass'n.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

The regular quarterly meeting of this association was held in the Y. M. C. A. rooms, St. Joseph, Mo., Dec. 12, at 8 P. M., with the following members present: Drs. Burgess, Bennett, Stewart, Kaupp, Moore, Wright, Kelly, Forbes and Heck. Professional visitors were Drs. J. S. Anderson, Seward, Neb.; A. T. Peters, Lincoln, Neb.; J. S. Buckley, U. B. McCurdy, Kansas City, Mo.; Henry Washburn, James Wilson, E. J. Netherton, and Thomas H. Ripley, St. Joseph, Mo.; city physicians, the Mayor, and several members of the Board of Health and City Council of St. Joseph.

Great interest was taken in the programme, and the meeting was by far the most important and valuable ever held by the association.

The following resolution was read and adopted by the association:

"WHEREAS This association has been asked to express its ideas as to the feasibility of the organization of a trans-Mississippi veterinary association, be it

"*Resolved*, That it is the opinion of this association that the profession of this section is not sufficiently enthusiastic and prosperous to attend and properly support such an organization."

DISCUSSION OF DR. STEWART'S PAPER ON SLAUGHTER-HOUSE INSPECTION.

The Chairman called upon Dr. John Forbes to lead in the discussion upon the paper presented to the Omaha meeting of the U.S.V.M.A. by Dr. S. Stewart on the subject of "Slaughterhouse Inspection," and Dr. Forbes responded as follows:

Dr. Forbes' Paper.

When the subject of discussing Dr. Stewart's paper was first suggested to me by the Secretary, we had some difficulty as to the method of procedure. We thought of dividing into infectious and non-infectious diseases, diseases of cattle and diseases

of swine, and after due consideration we decided to take the paper as it was written and divide it into two sections; the first section being allotted to myself, and the other to Dr. Heck.

Reading the paper over carefully, we find ourselves in agreement on its most salient points.

One of the essentials to an interesting discussion is that there be some variety of opinion amongst the participants. The paper is admirably written, and bears out the author's reputation in this respect. It is a good account of the work as it is carried on in the slaughter-house.

We are all agreed as to the wisdom and propriety of the meat inspection law, and we regret that the Federal government is unable to go further and extend it so as to cover every carcass intended for human consumption. While we are engaged in the protection of the public health of the other states, we cannot extend the same protection to the people of the state or municipality in which we are located. Local authorities must protect themselves. The Federal government maintains the equilibrium between the states, but each state has control of its internal affairs.

We are also agreed that in order to have a thorough system of inspection, great dependence must be placed in the competency of the inspector. Special training is necessary. A knowledge of veterinary science is indispensable to an appreciation of diseased conditions as they are met with in the slaughterhouse. Further, the inspector must be of sound judgment, and able to maintain himself intelligently in his decisions. Unnecessary friction will be avoided by exercise of this estimable quality.

The flesh of animals affected with anthrax or rabies, while regarding it as positively dangerous, is seldom if ever met with on the killing floor. The course of anthrax is too rapid to allow of the animal reaching a public market or abattoir. To meet with rabies on the killing floor the disease would have to develop after the animal was marketed, for I fancy there would be great difficulty in getting such an animal to a market or shipping point.

Malignant œdema, as has been stated, is not found in this country, and the same can be said of foot and mouth disease. European authorities do not consider the meat in the latter disease dangerous, and are satisfied in condemning only the head and feet, unless of course in the most aggravated cases. Consumption of the milk from such animals is said to produce a malignant sore throat in the human subject.

Animals which have died before slaughter, or are killed at the point of death, the flesh of such instead of classing it as suspiciously unwholesome, I would regard as positively unwholesome and dangerous. As you are aware, there are in the bowels of live animals large numbers of bacteria and their germs, which are only prevented from gaining access to the system by the healthy resistance of the intestinal mucosa. When death occurs, however, this resisting power is lost, and the bacteria enter the body, rapidly multiply and spread, and generate poisonous ptomaines. Several of these ptomaines have been isolated from flesh in a state of decomposition, and have proven to be of a very poisonous nature. It may serve the purpose only to mention one, viz., nervine, found in animal matters abandoned to putrefaction. "Ten milligrammes has fatal effect on a cat. Forty milligrammes has fatal effect on a rabbit. It excites secretions, increases salivation, accelerates the heart and respirations, contracts the pupils, causes staggering gait, the subject falls in collapse and dies in clonic convulsions with paralysis of the heart." The bacteria in the intestines are ærobic and anærobic, and the ptomaines are oxygenic or non-oxygenic according as they are the product of an ærobic or anærobic bacterium. Animals which have been slaughtered, or are dead from some cause, which leaves the blood deficient in oxygen, are suitable media for the propagation of the anærobic species. The flesh of such animals is difficult to preserve, and packers of meat know this from experience, for they are unwilling to place it in their salting cellars. Such scrupulousness, however, is not so freely exercised in the sausage factory. A liberal mixing with spices soon disguises any trace there may be of decomposition. Such meat produces a septic poisoning in the human subject. Ante-mortem inspections we consider of great importance. It enables us to detect and separate animals already manifesting disease, in order to insure a more careful post-mortem examination. Such animals we arrange to have killed by themselves, and at a time when the inspector can devote some extra time to the examination.

If the post-mortem is conducted by another inspector he should be notified as to the cause of the ante-mortem condemnation, and given such other information as would guide him materially in the examination, and enable him to arrive at an intelligent conclusion.

This ante-mortem inspection, however, especially when it is conducted in stock yards, before animals change hands, is

looked upon in another light than this, principally by those engaged in the live stock trade, and causes some little annoyance in its practical application. One man thinks that the inspection should be conducted at some other time or place, so that the other fellow shoulders the loss, and another thinks that having passed one inspection, they are "immune," so to speak, against another.

With reference to actinomycosis, a great change of sentiment has taken place within the last few years. The time was when an animal showing an enlargement anywhere on the head was condemned without any regard whatever to his physical appearance or to the probable conditions to be found on post-mortem examination. Members of the profession were indiscriminate in their condemnations, and the result was that thousands of dollars worth of wholesome meat was consigned to the grease factory, the greater part of the loss falling on the producer. It is different now ; we are not willing to risk an opinion till after a post-mortem examination. The conditions then appearing lead us to a conclusion. The lesions of the disease in cattle are generally confined to the jaw, although the actinomyces have been found in the lungs and other organs, where they form more or less voluminous and irregular tumors, calcified or purulent, and somewhat yellow in color. In the lungs it may resemble tuberculosis, and in distinguishing between the two I prefer trusting to the microscope than to the naked eye. Localized, it does not render the meat unhealthy, except when on the jaw it interferes materially in mastication, deglutition and the general nutrition of the animal. A fistula discharging into the mouth contaminates the aliment, and may cause general dissemination. In some of the other animals it affects a different form. In the pig, for instance, it has been seen in the muscular system and various other regions, appearing as small abscesses formed by the actinomyces. Such meat, it is needless to state, ought to be condemned.

With reference to tuberculosis we note that it is not very plentiful among the cattle of the West. Among swine it seems to have gained a foothold. In the slaughter-house it mostly interests us in so far as it renders the flesh dangerous. Opinions vary greatly as to the healthfulness or unhealthfulness of tuberculous flesh. In Europe where the disease is rampant, and where the price of meat is almost beyond the reach of the poorer classes, the matter of the disposition of tubercular flesh becomes largely an economic question. Confiscation of all tu-

berculous carcasses would raise the price of meat beyond the limit of the poor people, so that only the generalized carcasses are confiscated, the milder cases being allowed to go on the market as tuberculous meat and sold at reduced prices. There is no proof to show that this has increased the mortality from this disease in the human subject, in the countries where this practice is followed. If we consider the manner of the spread of this disease within the body we may conclude that some cases of tuberculosis are not so dangerous as appears. As a rule infection takes place by way of the lungs or the intestines. The bacilli penetrate the mucous membrane, enter the lymph channels and are carried to the nearest lymphatic glands, in a great number of cases without injury to the organ through which they obtained access. They thus form in the glands primary foci of the disease. The bacilli on reaching the gland set up an irritation, followed by a cell proliferation and formation of new elements. This goes on for some time, although it is yet purely local, but it is soon followed either by dissemination of the disease, or calcification overtaking the process, in which latter case the disease becomes stationary.

Dissemination takes place in three ways : (1) contiguity, (2) by the lymph, (3) by the blood. Contiguous dissemination is exemplified in tuberculosis of the serous membranes. Dissemination by the lymph stream is a slow process. Dissemination by the blood causes a general infection.

When we have a case of generalized tuberculosis, as shown by the appearance of tubercles throughout the carcasse, it is right to condemn such meat, but when we have a case where the only lesions shown are in the lymphatic glands, and we are confident that it is so confined, and especially when the glands are in a calcified condition, and the carcass has the appearance of having been well nourished, I think there is no danger in such meat, and there is justification for allowing it to go on the market.

Occasionally we find "Texas fever" in the slaughter-houses. Generally, however, the disease is observed by the ante-mortem inspector and as a result the whole drove of cattle is sent to the slaughter-house in order to save the carcasses of the least affected. The disease is not communicable to man, but as it is a febrile disease the flesh cannot but have deleterious effects on the human organism. I quite agree with Dr. Stewart that it taxes the judgment of the inspector quite severely, in passing upon the carcasses in which the disease is not fully developed.

So far as appearances go a great many carcasses of exposed

cattle look perfectly well, and it is impossible to tell that they have been infected. The only way out of the difficulty would be to take the temperature of each animal, rejecting those that show an increase.

At the close of Dr. Forbes' paper, Dr. W. A. Heck was called upon. who responded as follows:

Dr. Heck's Paper.

The author of this splendid paper under discussion has labored under a great disadvantage in its preparation. The large number of topics considered necessitated briefness and thereby some of them have suffered for want of completeness.

The opinions here offered, however greatly they may vary from those of the author, are made in the most friendly spirit.

After once having established a system of meat inspection the questions promptly arise, "How is it to be conducted?" "Who is to inspect it?" and "What is to be considered fit for food?" The latter question is the one which concerns us the most.

Emaciation may be classed both as physiological and as pathological. The first is a normal wasting away from lack of provender, the second due to some perverted physiological condition.

We are all agreed that normal emaciation is not hurtful for food, yet the disappearance of the nutriment of the flesh renders it necessary for us to make a distinction.

In this process of emaciation the interstitial, mesenteric and abdominal fat is gradually consumed, leaving small islands along the spine and pelvis with a small amount always remaining in the muscles. The vital forces diminish; the heart weakens; blood becomes impoverished and the serous elements percolate through the tissues and accumulate about the joints along the spine and in the pelvis as a yellow gelatinous accumulation repulsive to sight. The muscle fibres, retaining in themselves the strength and power of the animal, shrink from metamorphic changes of the sarcous elements. Such meat contains more fibrous indigestible matter than normal flesh.

Sentiment demands that we condemn animals reduced too much in flesh. Some advocate condemning when the skeleton is visible upon being dressed. Personally I think the age of the animal, the loss in weight, and the condition of the flesh and viscera are all factors to be considered in passing judgment.

Of course, in emaciation from disease one has no hesitancy about condemning.

It seems a practical impossibility for an inspector to recognize acute kidney affections on killing floors of any of our large abattoirs. Hogs are rushed along at the rate of several hundred an hour and in but few of them is the kidney exposed until far past the inspector, when, if he sees a detached kidney it would be difficult to find the carcass from which it was removed. Acute nephritis is very rarely seen except in cases of cholera, when other symptoms would first attract attention.

The kidneys of all our food producing animals are covered with fat, which is not removed in the dressed carcass except in the case of the pig. Under these conditions how is an inspector to recognize such affections as acute nephritis unless the ante-mortem symptoms have aroused suspicions?

I have never, in my experience, seen a case. The nasal test for uriniverous odors is impractical, as no one has time to get close enough to each carcass to do this.

These cystic kidneys are frequently seen, and where the urine has been much obstructed I would favor condemnation.

It seems that the color of the fat of beef cattle is rather due to the diet than to other things. All of you have noticed the effect of food upon the color of butter fat. Why should it not have the same effect on the interstitial fat? At one time I gave considerable thought to this subject and some investigation. It was thought the breed might have something to do with it. This theory was followed until found fallible. It was noticed that a bunch of cattle fed in the same lot would bear a wonderful uniformity in color, some herds being an old gold yellow, others a dirty mixture of yellow red, and still others that beautiful waxy white color so much sought by the packers. Attention was then turned to the food, and from a study of the ingesta at post-mortem I have reason to believe the beautiful white color may come from fattening on white corn and alfalfa hay, and that yellow corn and timothy and clover hay may grow yellow fat. This question of color is quite an important factor to both packer and stockman.

The packers now resort to a bleaching process in the coolers to improve the color of carcasses and if they could buy on foot cattle which could be relied upon to dress out a beautiful white, they would command a better price.

The author makes use of the term "cold abscess," and states they are found in all parts of the body. From the sweeping manner in which the term is used we can hardly infer that he means tubercular abscesses, but rather abscesses which exist

without any specific cause and without any active inflammation. If this is true, the term is misleading. In fact, the term "cold abscesses" is now almost obsolete among modern pathologists. It formerly was used to denote an old tubercular abscess, like a psoas abscess, but since so much has been learned in the past few years about tuberculosis, it seems that the term no longer fills a place in scientific phraseology.

The disease affecting the lymphatic glands of sheep (sometimes called lung disease) and, as the author has stated, resembles tuberculosis, is not only confined to those raised in Utah and Colorado, but is found in Arizona, New Mexico and California. The worst affected flock I ever saw came from California. Neither is it confined to the lymphatics of the thorax. It may involve any glands of the body, but more particularly after the mediastinal, the sub-lumbar, prescapular and inguinal.

Trichinae in small numbers in pork certainly do not alter the character of the flesh, but where they are present in countless multitudes the severe myositis induced by their presence and migrations cause in many instances marked structural alterations. The muscle fibres are in some cases hypertrophied, due principally to the increase in the inelastic fibrous sheaths which enshroud the sarcous elements. Some of the fibres seem to have lost their vitality and are apparently dead; others have undergone degeneration (Zenker's Disease). In some carcasses the trichinae are nearly all dead, and then begins a steady process of calcareous infiltration or degeneration of the organisms and cysts, and continuing pervades the adjacent structures till there is so much of this calcareous matter (principally carbonates and phosphates of calcium) that the flesh seems actually gritty on being treated for microscopical examination. I maintain that such flesh is unwholesome and should be condemned. I am not saying that all trichinosed meat should be condemned, nor any large per cent. of it, as the cooked worms are probably assimilated, but in such conditions as described above, I am thoroughly convinced.

A great deal of our inspection is based on purely sentimental principles and our sentiments are capable of cultivation or degradation.

Some people may eat rats, mice, snakes and ants without violating their dietary scruples. These people are not the highest in the scale of civilization, yet when we look about us we find some so-called enlightened who are fond of hot chit-

lings, lungs, chicken and calf heads, and even testicular and other parts of a carcass, which to people of higher cultivation are disgustingly loathsome, and even the thought of which is almost enough to make one a vegetarian.

When an individual inspector is left to his own discretion—drawing his own conclusions as to what and when to condemn, we have as many variations in opinion as we have individual inspectors; therefore, in such a great system as the Bureau of Animal Industry, we should have a fixed ritual as complete as possible to insure uniformity. I am aware that it is impossible to lay down rules that will apply in all cases, but we can, I believe, arrange instructions for cases where the carcass is condemned on sentimental principles.

Morality, intellectuality, refinement and dietary cleanliness I believe go hand in hand. Force upon a people of this type, rats, mice and other classes of food mentioned above, and you insult their higher instincts; you crush their self-respect; you in time drag them down to a level with the polluting influence itself. There is a desire on the part of the best people of our nation for the better things of this life. They are striving for better schools, better homes, better clothes, better food, better everything. They are ready and clamoring for thorough meat inspection. Not only is the public demanding protection from diseased meat, which is positively dangerous as food, but they demand protection from the loathsome affections and unclean conditions which appeal to the finer and more delicate instincts of cultivated and refined people.

If there is too much meat that is "suspiciously wholesome" and "loathsome" and "growsome" that for mercenary reasons must not be condemned, then I say let us have two classes of inspected products. One absolutely sound, pure and free from every taint; the other conditions which are not dangerous but of such character as to be undesirable to those who demand the best. Let the meat be branded so that the purchaser can know exactly what he is buying. Because the germs of tuberculosis, actinomycosis, and all the other pathogenic and non-pathogenic organisms are killed by a high temperature (cooking temperature) is no reason why I should be obliged to buy at the same price and eat without knowing mildly affected cases of any of those affections, or loathsome diseases and conditions which are not absolutely dangerous.

Because a sheep previous to slaughter may have carried about in his lymphatics merely a few ounces or a few pounds of pus

is no good reason he should be placed on the market on a par with a perfectly healthy one. This scheme may not be near at hand, but this question will never be at rest in my mind until it is consummated, and the sooner the people come to understand the situation the sooner will it be realized.

GENERAL DISCUSSION ON SLAUGHTER-HOUSE INSPECTION.

Dr. Johnson: If there is one thing that I am prouder of than another it is that I am an American citizen, and I am also proud that we have a good system of inspection, and that we are under no danger of consuming meat that is loathsome and disgusting. I feel that the best is not too good for us, hence I do not want to see engrafted into American systems, some of the European methods. We want to see the American people have the best of the American products.

Dr. Stewart: I am quite interested in the two papers just read, and as many of us are inspectors there ought to be a good deal to say. My paper was necessarily condensed so as not to make it too voluminous. The dominant thought was to arrange some ideas which would help in formulating some conception in regard to the work of inspection. My acquaintance with veterinarians without any experience goes to show that they enter the business with very crude ideas, and lacking in matters of judgment. The paper was not written with the idea of enlightening those in the service, but to help others in organizing municipal inspection at home. I would like to see some of our progressive men take up this work and elaborate it into a book. One phase of the question was not entered into by either paper, viz., reasons for inspection. If we had reasons to put before the public, our position could be better maintained, and this thought was intended to stimulate in this direction. As to criticisms they are most gratifying, probably too flattering to make a good debate. If the gentlemen had gone into it tooth and nail, it would have provoked a lively discussion. Malignant œdema the writer stated was not found in this country. Probably he made the statement without much thought. I have seen several cases which I thought were malignant œdema, and, therefore, I felt justified in adding it to the list. The subject of rabies excited my interest. As a state official I once had occasion to visit a head of cattle exhibiting signs of this disease, and came to the conclusion that rabies was present. Some communities have a natural dread of this disease and destroy the animals, others again are not so fastidious, and have the habit of shipping animals to market forthwith; therefore, it is not improbable

that cases of rabies could get to market. It is not probable but possible to get them. I remember a bunch of Texas steers, which showed wildness, and the symptoms were those of rabies. I advised quarantine but the local authorities were too slow, and the animals got off to the market. I was much pleased with the remarks made about actinomycosis and was sorry he did not make reference to the dissemination of the disease. It was noticed that fistula in the mouth was said to cause general infection. I have never seen a case of general infection, and I have seen cases where the jaw was affected, and there was opportunity for generalized actinomycosis. If dissemination can take place this way why don't we see more of it? Cases of lung infection are brought about in the same way as in the human subject—by inhalation. Actinomycosis of the liver has been brought to my notice, but have never been able to discern the actinomyces in these cases. Tuberculosis in swine was quite interesting. Swine get it from eating the carcasses of tuberculous animals. The farmer having a steer that does not thrive slaughters him and allows the hogs to eat the carcass, and very often these unthrifty cases are of a tuberculous nature. Dr. Lyford, of Minnesota, cites a case where the entire herd of hogs were affected from eating a diseased carcass. I was also interested in that part where the nose is used in detecting uriniferous odors. We frequently find butchers who can tell such a carcass as it comes along by its smell, and inspectors could learn it in the same way. It was interesting, too, the reference to the peculiar coloring of the fat of carcasses. When this subject was mooted to a Kansas farmer, he replied that the cattle were raised in Western Kansas, and it was due to eating sunflowers.

Dr. Anderson: I do not think of anything that I can add to what has been already said, but you will allow me to congratulate you upon having such a good and interesting meeting.

Dr. Kaupf: Dr. Heck spoke of different foods producing different colors; I would like to ask him if cotton-seed meal would produce a yellow color?

Dr. Heck: I don't know; a great many things will produce a white fat. I came to these conclusions from a study of the ingesta at post-mortems.

Dr. Wilson: Dr. Heck, do you think that white corn and alfalfa would produce white fat in an old Jersey cow?

Dr. Bennett: What is your ideas of these conditions, Dr. Heck?

Dr. Heck: When employed at Kansas City the packers

told me that cattle with this white condition of the fat were much preferred by them. I was assisted much in getting names of feeders of different bunches of cattle with fat of different colors, but just at that time sickness prevented further investigation. When recovered, it had been so long that I feared my statistics would not be accurate, for the feeders might have forgotten all about the particular bunches of cattle. I came to these conclusions from an examination of the ingesta.

Dr. Moore : I don't know anything about meat inspection, but I have seen a few cattle fattened, and I would like to ask Dr. Heck the percentage of those cattle which show this waxy condition of the fat. White corn is worth more than the yellow, and it is usually hauled and shipped out, and it is not much raised. The alfalfa sections are limited, therefore the percentage of cattle of this character must be limited.

Dr. Johnston : Some four months I spent in Phoenix, Ariz. All cattle there are fed on alfalfa and barley, and it struck me to see such fine meat in the butcher shops, and I used to stop and admire the finest specimens I ever saw in my life. I found there white and yellow fat where no corn was fed.

Dr. Heck : This question of the effect of food on color of fat can be easily settled. The inspection force in the Missouri Valley has an excellent opportunity to observe the different manifestations at the abattoirs, and trace the animals to the feeder. There is a very small percentage of these beautiful white carcasses.

Dr. Kaupp : Occasionally we find one or two cattle of a golden yellow, while the remainder are normal.

Dr. Heck : I thought I made this clear. By cattle being shipped to market in one car, is no guarantee that they have all been fed in one lot. Stockmen frequently in grading a car of cattle, buy from other feeders to complete their shipment, and there are many other complications that are possible that would tend to defeat any investigation.

Dr. Netherton : I would like to ask Dr. Heck what is the difference in the nutrient material of the different kinds of corn, and what would be the effect of feeding brewers' grains?

Dr. Heck : There is no difference in the quality. Feeding slop has a tendency to produce soft, watery flesh, which does not contain as much nutrition as the flesh of corn-fed animals.

Dr. Kelly : The army regulations are against the purchase of beef with yellow fat. They claim that the percentage of loss is greater in such meat.

Dr. Kaupf: I call to mind one bunch of cattle fed in a brewery, in which the fat was white.

Dr. Peters: I am much interested in Dr. Forbes' comments on tuberculosis in hogs, and would like to know what percentage of hogs were affected, and also the organs affected. Our literature is very scarce on this subject. Dr. Heck made some remark about cystic kidney. He did not say much about them, and they are a source of merriment to the farmers. I have received a good many letters from farmers of Nebraska about this condition, and I would like to know the relation of the kidney worm to these cysts. I liked the comment on ptomaines in Dr. Forbes' paper. This has been one of the most interesting meetings that I have ever attended. It is the first time since leaving the old country that I have had an opportunity of discussing meat inspection.

Dr. Stewart: There are several points that have not yet been discussed, amongst them cystic kidney and lung disease in sheep. Of cold abscesses there is a chance to say considerable. They are often met with in cattle located in region of the kidneys and liver. A cold abscess seems to consist of a dense limiting membrane, the cavity filled with laudable pus. The area around does not show active inflammation. Cystic kidney is very common, and I may say that it is not due to a worm. Mr. Stiles, the zoologist of the Bureau of Animal Industry, who probably knows as much about worms as anybody, while in Kansas City, had his attention drawn to this, and he was inclined to think it due to the echinococcus, but he failed to prove this in two demonstrations. He thought that it was due to a serous micro-organism. I think that the classification of meats will never be applied in this country.

Dr. Bennett: Like a former speaker I am proud to be an American citizen. A meat inspector should have no sentiment. It is not a disease and should be eliminated from his mind. He is informed as to his duty, and if he cannot work in accordance with the rules laid down he has no business there. With reference to actinomycosis there is no case or record of it being communicated to man from animals. Ostertag, one of the greatest pathologists of the day, regards it as a local disease. Human cases of actinomycosis are brought about in the same way as in the bovine animal. We frequently have cases of actinomycosis of the lung, and if sentiment has anything to do with it, the animal should be condemned, when there is no reason for condemning it. When interfering with mastication it causes

emaciation, and the animal ought then to be condemned. A meat inspector should eliminate sentiment from his mind ; his knowledge of disease should be a sufficient guide to him in his work. In tuberculosis I think we ought to cut closely. We should condemn all cases of tuberculosis, no matter how little or how great they may be affected. We never find muscular actinomycosis, but we do often find tuberculosis in the muscles. An inspector must rely on his judgment and knowledge of pathology in protecting the public health. If he allows sentiment to enter into the question he is not doing right towards the man handling the meat, nor to the producer nor to the man exposing it for sale.

Dr. Heck : Some one has said that they did not believe in aping Europe in our customs, but we must realize that they have the oldest systems of meat inspections and the most rigid laws, and in many things we pattern after them—military matters, for instance.

They have found there that by condemning all diseased carcasses, some of which are not absolutely dangerous, that the loss entailed is too great, therefore they find it necessary to place on the market two classes of meat, and I believe we will have to come to the same conclusion. The public will protest against putting on the market the carcass of any animal having a purulent abscess or an actinomycotic tumor on the jaw. It is an imposition upon the people to allow stuff of this kind to go on the market as being thoroughly inspected and free from disease. We recognize that in diseases due to germs, the flesh can be rendered harmless by subjection to a high temperature, as in cooking ; then why not place mild cases of tuberculosis on a par with actinomycosis, and other affections just mentioned not dangerous, by canning the product. It is different in cases where ptomaines have formed, as I understand that certain ptomaines do not lose their toxic qualities by being subjected to cooking temperature. The last speaker has said that actinomycosis was never seen in the muscular system, but I have seen several cases of muscular actinomycosis. One case I remember some ten years ago while at college. The case was a two-year-old heifer in a herd of 21, where eleven were affected, and she had actinomycotic growths in great numbers over all parts of her body. From some on the legs below and above the hocks and other parts of the body, specimens were taken for microscopic examination, and on being examined the organism was found. I have also seen some while engaged in practice,

but never since I have been in the government service. Cystic kidney is not due to a kidney worm, but I believe them to be retention cysts, due to obstruction of uriniferous tubules or possibly to the ureters themselves. I believe that when a large amount of urine has accumulated the carcasses ought to be condemned.

Dr. Stewart: I wish to express my sorrow that an enlightened veterinarian should think that these cysts contained urine. I always supposed that it was a limpid fluid that lacked everything of urine but its fluidity.

(To be continued.)

CHICAGO VETERINARY SOCIETY.

The regular monthly meeting was called to order December 8th at 8.30 P. M., President Robertson in the chair. Roll-call showed sixteen members present, Dr. Butterfield visiting by invitation of Dr. B. A. Pierce.

The minutes of the previous meeting were read and approved.

President Robertson passed over the usual remarks in order to expedite the business of the evening. The reports of the Secretary and Treasurer were dispensed with and a communication from Dr. W. J. Martin, President of the Illinois State Veterinary Medical Association, calling attention to the great need of veterinary legislation in the State of Illinois was read and referred to the committee on legislation.

The application of Dr. Walter E. Howe, a graduate of Toronto Veterinary College, 1896, and New York State Veterinary College, 1897, was favorably reported on from the Board of Censors and his admittance to membership was voted on and carried.

A communication from a committee representing the Iowa and Nebraska State Veterinary Medical Association, asking this society to consider the advisability of organizing and becoming a part of the proposed Trans-Mississippi Veterinary Medical Association, which was laid over from the November meeting for consideration, was re-read and discussed, resulting in the Secretary being instructed to inform the committee that this society would take no action as a body; the decision of the society not to be construed as an indication of unkind feeling toward the matter, as individually the members recognize the vast good derived from veterinary societies and looked very favorably upon the proposed organization.

Dr. H. W. Hawley then presented his paper entitled
VICES AND THEIR RELATION TO SOUNDNESS.

I shall define a vice in a horse as a fault or habit which injures the selling price or usefulness of the animal for the purpose required, and which cannot be remedied. I shall name cribbing, weaving, balking, kicking, shying, halter pulling, switching, side reining, lugging, running away and nervousness as vices. Vices are natural, hereditary or acquired. Some are the result of a diseased condition.

Cribbing is a habit, the result of idleness and too long intervals between meals. The horse amuses itself or is hungry and bites at the manger, and gradually works himself into this habit. A cribber should in every case be rejected, as it is a disagreeable habit, leading to indigestion and kindred diseases. The animal is also liable to disfigure or destroy anything with which his teeth come in contact. Wedges driven between the teeth will produce sufficient soreness in a few hours to prevent temporary cribbing. All suspicious cases should be examined for this trick.

Weaving is also a habit acquired from idleness. The rattle of a chain halter may assist in the formation of the vice. Circumstances might determine the acceptance or rejection of a weaver. A horse does not weave in harness; at least, I have never seen one. There is slight danger of it injuring the health of the animal, especially if he is in constant service. After explaining the nature of a weaver to the buyer, he should be advised to use his own judgment. The animal might be valuable as a prize winner, sire or brood mare.

Balking.—A man who has patience enough to use a balky horse, deserves to be pensioned. I have never known of a balky horse being cured of the habit. He is liable to stop at any moment, and if stopped may refuse to move, and should by all means be rejected. We have what may be termed green balkers. The horse may be clever in double harness, but when first put in shafts will manifest all the symptoms of a balker, but soon becomes clever with a lesson or two. Unless sold to be thoroughly broken to single harness, such a horse should not be permanently rejected. A good test for a balky horse is to start, stop, back up, and then start again. If he does this perfectly he is probably all right.

Kicking.—A kicking horse is certainly not a very desirable animal either in stall or in harness. A horse when first put in single harness may kick a few times, but soon becomes gentle

with a little handling. Mares sometimes kick in double harness, but work cleverly single. A kicking harness horse might be useful as a saddler if sold for that purpose only.

Shying.—Nearly all country horses when first brought into the city shy for a while, but some are short sighted and always shy. The latter should be rejected. When a horse is sold to be thoroughly broken he should not be rejected for shying unless it can be determined that it is chronic.

A confirmed halterpuller might be useful as a coach horse if adapted to the purpose and kept in a box stall. In such a case the buyer should be advised to use his own judgment.

Switching.—This is rarely seen in the horse, and is the result of a disease of the ovaries in mares. They should be rejected.

Side-reining is one of the most disagreeable vices a horse can have. If it is caused by a sore mouth and it can be shown that it is only temporary, the horse should be driven again after the mouth heals.

Lugging is also a disagreeable habit, but cannot by any means be always called a vice. A horse may lug on one kind of a bit and drive beautifully with another. It is not an unsoundness, as properly hitched a horse will not lug.

Running away.—There is a difference of opinion as to what constitutes a runaway horse. Any prompt, free driver will run away if unrestrained. Some first-rate family horses will run away under certain circumstances. Some will say that a horse that has run away once is never safe again. Such is not the case. A horse that will suddenly make a dash for liberty, and which cannot be controlled with the ordinary driving bit, is, in my opinion, a runaway horse. In examining horses for soundness, it is customary in this country to run them for their wind in harness. If they stand such a test with an ordinary bit they should be passed.

Nervousness is hereditary, but a high-bred animal becomes nervous with abuse. Many are useful for some purposes, and totally unfit for others. What one person would call a nervous horse, would just suit another. I know a veterinarian who could not be induced to ride behind a snappy high-class horse. I know another who would not give a dollar for a horse unless he looked wilder than a hawk. The practical examiner should consider the person and purpose for which the horse is bought.

Leaving the subject of vices for discussion, I will conclude with a few remarks on the practical part of examining horses for soundness. I take it for granted that most of the members

present are trying to enlarge their bank accounts. The price for examining horses ranges from \$2.50 to \$7.50. It takes very little time and labor to look over a horse, and a hundred or more examined each year will go quite a distance toward paying expenses. It has been argued that the dealer or seller should receive no consideration whatever. I have observed that about 75 per cent. of the horses sold in Chicago, subject to veterinary examination, go before one man. I said to myself, there is some reason for this, and when I saw him look at some horses I tried to discover the secret of his success, and I found that it was his fair treatment and consideration of the seller as well as the buyer. In fact, he has the universal respect of every reputable dealer in the city. They know he will not reject their horses, provided they are useful for the purpose required. I also noticed that he apparently has no whims or prejudices, and is not married to any particular breed or color. The result of this is that every dealer in the city is ready to sing his praise at every opportunity, which goes a long way toward keeping up his reputation. I know another veterinarian who is universally disliked by the dealers, and they will miss the sale of their horses rather than see them go before him for examination. He starts out on an examination with the idea of finding something on which to reject the horse, and usually accomplishes his aim. Another veterinarian is almost afraid to pass a horse for fear something will happen for which he will receive the blame. I once received a horse from the country which was a fine specimen of his class. His conformation was superb, his action faultless; he was a coach horse in every sense of the word, and such a horse as one would strive for months to find. He had a small insignificant splint, slight wire mark on the pastern, his mouth had been forced probably three months to a five-year-old, and there was a small scar on the cornea of the left eye. Many offers were received for the horse, and finally he was disposed of for \$600. The buyer had been looking for two years for just such a horse. He bought him subject to veterinary examination. The doctor overlooked the splint, spot in the eye, and wire mark, but called him a four-year-old. As the gentleman disliked to part with such an animal he called a second doctor, who passed him on age, speck in the eye and splint, but could not stand the wire mark. A third doctor was called, who accepted the wire mark and age, but noticed the scar on the eye, and the splint would surely produce lameness inside of six weeks. The horse was returned and I was branded as a swind-

ler. I told the gentleman to take the horse and use him three months, and if at any time he felt like paying for him to do so; otherwise to return him to me at the end of the three months, and to pay whatever he wished for the use of him. The horse has been paid for and is one of the finest on the north side to-day. No veterinary surgeon will ever examine a horse for that man again.

So good a buyer as Mr. John Dupee has dispensed with veterinary examinations entirely and now examines his own horses. His reason is that they kept him from buying a good horse. There is a class of dealers who work nothing but a skin game and their horses seldom if ever go before a veterinarian for inspection. They know what will happen. There is another class of dealers who handle nothing but the very best, and every horse sold is warranted, and they will make their warranty good. For a veterinarian to reject one of their horses on a mere technicality or personal whim, is to drive a nail in his own professional coffin. The chances are the horse will be sold in spite of his opinion and should it prove satisfactory, the buyer loses confidence in the doctor. I know a doctor who has noticed all his life that horses with three legs that are white are of little practical value. The specifications for cavalry horses say, "a gelding of uniform or hardy color," when as a matter of fact a mouse-colored horse with a black stripe down his back, a buckskin, or a roan, is no better or tougher than the soft bay, gingerbread sorrel, or the despised horse with three white legs. Veterinarians are criticised by dealers more than by any other class of people, and one who does not go about a horse in a horseman-like manner, is put down as a professional fool and is so advertised. A short time ago a doctor holding a position with the U. S. Government was called to the stock yards to examine a draft horse. The horse had a pronounced curb, which could be plainly seen at quite a distance. There was a crowd of horsemen around and every one of them saw the curb. The horse was not expected to pass the doctor, and it was supposed he would reject him at first sight. He spent nearly a half hour examining every point about the horse, and finally saw the curb and rejected him. A smile passed over the faces of the horsemen, and the rest of the veterinary profession no doubt had to suffer for this man's shortcomings. I could mention many other absurdities which I have observed, but these will suffice.

The following is my method of examining a horse for soundness: First of all I never examine a horse in harness, as it

covers defects and the horse may have been warmed out of lameness. I watch him as he is being backed from the stall, to see that he is not vicious, a halter puller or crampy. Standing at a reasonable distance, say, eight or ten feet, and walking around the horse a general view of the outlines can be had. In this way any prominent defect is discovered, and it is not necessary to go any farther. Not discovering anything the horse is led to the door. Just before passing out of the door, I examine the eyes and mouth. The light at this point is just right to reveal any defects of the eyes. The horse is then walked and trotted at the halter. I always stand directly in front when the horse is coming toward me, watching the front limbs only, likewise the hind ones as he goes away. In passing, his knee and hock action is observed. His gait being perfect, I then examine him in a methodical manner, commencing at the nose and going over each section. This is repeated on the opposite side. He is then turned short and backed for string-halt, after which, he is put in harness and run for his wind.

DISCUSSION.

Dr. Campbell: Dr. Hawley mentioned the case of a veterinarian who was very much liked. What would he do in the case of the \$600 horse that had a splint?

Dr. Hawley: He would pass the horse. I mentioned that the horse had but a small insignificant splint.

Dr. Merrilat: I would like to have Dr. Hawley again describe his remedy for a halter-puller.

Dr. Hawley: It is very simple, a rope is passed around the body of the animal over the back and between the front legs and then through the halter ring and fastened to the manger.

Dr. Merrilat: This paper is one of the best that I have ever listened to. It is full of practical suggestions that are original deductions from personal experience and I hope it will be published. There is one point about side-pulling on which I have my own ideas. The doctor mentioned that side-pulling is due more to a sore mouth than to anything else, while I find it to be quite different. In many side-pullers we do not find anything wrong. I think it is due to the cleverness of the horse. He is naturally ambitious and knowing that when he turns his head a little to one side he can take advantage of the driver. He wants to go ahead faster than the driver is willing to allow him. The remedy is simple. An apparatus consisting of a leather washer with tacks driven through it, generally cures the horse. There is also another side-puller that ought to be called

side-goer. He does not pull much, but he insists on going to one side of the street. Such a horse is incurable, as far as my experience goes. No matter what you do for him, he continues to go to one side. Therefore, I consider side-goers and side-pullers as quite different, and believe the former to be incurable.

Dr. Walker: I am quite interested in Dr. Hawley's paper, and acknowledge that it is one of the best that I have ever heard. He states that he never examines a horse in harness. What would he do in a case where the horse owner absolutely refuses to have the harness taken off? In examining a \$1000 horse for instance, do you think by taking this horse out for 15 minutes you could determine that this horse is not crampy? Would it not be better to have him in your possession for at least 24 hours?

Dr. Hawley: I referred to the absurdities indulged in by some veterinarians in making an examination for soundness; very often making a laughing stock of themselves. Certainly the value of the animal has some bearing upon the length of time spent in making an examination. In examining a \$1000 horse I would naturally be more particular than with a \$50 horse, and in a high priced horse it is preferable to have same in possession for at least 24 hours. As far as examining them in harness is concerned, there is no dealer that wants to do what is fair that ought to object to its being taken off. No horse should be examined with the harness on, as it covers many defects.

Dr. Walker: A veterinarian has to be very careful with horse dealers. One of my clients went to one of the supposed-to be reputable horse dealers to look at a horse. The dealer pronounced the animal as perfectly sound. My client offered him \$20 down, the balance to be paid upon my examining him and my pronouncing animal sound. To this the dealer objected, saying that I had a dispute with him over an animal before. This was not true. Another veterinarian was called, who pronounced the animal unsound.

Dr. Quitman: Regarding the \$600 horse you mention that had a scar on the cornea. Can you be positive whether it was a scar or an opacity?

Dr. Hawley: Yes.

Dr. Quitman: I examined a horse some time ago, an ordinary working horse. He was sound in every particular except he had a very small opacity in the cornea. I examined him

carefully to see if any signs of periodic ophthalmia were present. I passed the horse and regret it ever since. That horse had periodic ophthalmia.

Dr. Hawley: Why did you pass the horse?

Dr. Quitman: To do justice to the dealer as well as to the buyer. We often find horses with such opacities, or rather specks which are all right. Possibly this horse was prone to periodic ophthalmia.

Dr. Hawley: Then you did an injustice to the buyer.

Dr. Ryan: In regard to this speck in the eye, I think any scar or speck causes a defect of vision. If it was very close to the sclerotic it would not cut much figure. But if there is any speck within the cornea I would not hesitate to pronounce him unsound.

Dr. Hughes: I think we should all join Dr. Merrilat in congratulating Dr. Hawley on his paper. It deserves every consideration and I hope to see it published. I would like to hear an expression of opinion in regard to the nature of cribbing. I would like to know whether it is possible for such an animal to actually swallow air and inflate himself. With regard to weaving, what is a weaver anyhow? What is the cause of it? Is it a nervous disease? If it is what authority is there for saying so? Physicians often ask us these questions and it is a slur on us not to be able to answer these questions satisfactorily.

Dr. Campbell: Dr. Merrilat will read on weaving and cribbing.

Dr. Hughes: If such is the case, I withdraw my questions.

Dr. Robertson: In regard to the scar in the eye. Another thing I would like to know about. There are some operators that operate on periodic ophthalmia. At the time of operation there was a distinct scar on the eye. The operator assured me that after he operated on the eye there would be positively no return of the ophthalmia. Even if the eye was clear from opacity and only the scar from the operation I am dubious whether I would be justified to pass such a horse. I had a horse with a speck in the eye and he would at times jump as if surprised by something being due to interference with his vision and I think that a veterinarian cannot be too careful in such cases, and attention of the buyer should be called to such specks or scars whenever there are any.

Dr. Quitman: What was this operation you refer to and how would it prevent further ophthalmia?

Dr. Hughes: In five cases that I operated upon three of them had subsequent attacks. One of them had no subsequent attack, while the fifth one I have not been able to keep track of. The operation is very simple. Make an incision of the cornea and sclerotic junction and liberate the contents of the anterior chamber. The eye collapses when the humor is liberated and fills up again in four or five days.

Dr. Hawley: In regard to Dr. Ryan's statement as to his pronouncing a horse with a speck in the eye unsound. I don't want it understood that I was in any way criticising or defending the opinion of the veterinarians. I just wanted to show the effect that these opinions had on the buyer. One rejected the horse on account of the eye, while the other passed him.

Dr. Robertson: Is there any member who has anything new in the way of operations to report?

Dr. Merrilat: About a year ago we had presented at the clinics a case of chronic nasal discharge, which was diagnosed as pus accumulation in the guttural pouches. The animal was cast and the pus removed by operating through the fauces. Since that time I have made a number of experiments along this line. We have shown that by cutting the soft palate in the median line throughout its whole extent operations in the pharynx are comparatively simple. The hand containing a curved bistoury is passed through the fauces and the soft palate is cut from behind forward from the base of the epiglottis to the palatine bone. The fingers can then be inserted into the Eustachian tubes with ease and an examination of the guttural pouches easily made by palpation. If they are found to contain pus the roof of the pharynx is cut in the median line. This admits the fingers between the guttural pouches. The abscess is then broken into with the fingers. The first operation was performed on an animal in a recumbent position, but since that time a number have been operated upon in the standing position. The soft palate never reunites, but the animal seems to suffer no inconvenience therefrom. This new procedure of cutting the soft palate certainly opens a new field for diagnosis if not for a number of surgical operations. The operation can be performed in a standing posture by the aid of a good substantial speculum.

Dr. A. M. Casper was to have presented a paper on "Temperature," but failed to appear.

Dr. Allen reported a case of hoof sloughing following the high operation of neurectomy.

Dr. Hughes mentioned two cases of sloughing of hoofs in mules following the same operation, and gave as his opinion that every time you neurectomize a mule you get a sloughing of the hoof. He also mentioned a case of a race horse that had been sent to his infirmary from Washington Park track. When he arrived at the hospital the boy who had him in charge was carrying the hoof under his arm.

JOSEPH B. CLANCY, *Secretary*.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

The regular meeting was held in the Library of the College on the evening of November 3d. The President, Dr. Adami, occupied the chair, and there was a fair attendance of members, supplemented by the presence of the Hon. President, Dr. D. McEachran, Prof. Mills, Dr. Alloway, Dr. Gunn, Dr. Moore and Dr. Sugden.

After disposing of routine business the Chairman called upon Mr. Kato, who presented to the society his essay on "Eclampsia." The word eclampsia (derived from the Greek), meaning to shine or burst forth, was used by some authors at a very remote period and is now the term commonly applied to cramp or convulsion of involuntary muscles, occurring after parturition. It is generally believed that the disease attacks mostly bitches. Opinion as to its cause is very varied, but that the symptoms result from a disordered nervous system is beyond question, but it is very difficult to determine the cause of this condition. Like the other tissues of the body the nerves undergo a process of degeneration and repair, and it is possible that in this disease the materials proper for this repair are not circulating in the blood vessels, and thus bring about this disorderly action of the nervous system, which system must always be considered as an important factor, especially in such diseases as eclampsia. The dogs most susceptible were skye terriers, Yorkshires, spaniels and collies and the various toys. This increased susceptibility was probably due to their excessive sensibility to external influences, such as excitement, worry, etc. Mr. Kato then described the symptoms as seen in a case which came under his own notice. Despite the severe nature of the disease, consciousness is not lost, and one may often observe an animal try to wag its tail when called by name. An attack may last for 24 hours or more, but with varying intensity during that period. In mild cases recovery takes place without treatment. On the other hand, if the attack be an acute one, the patient may fall

into a comatose condition and die in a very short time. A sedative treatment is indicated and for this purpose we may use hypodermics of morphia, the administration of chloral hydrate, bromide of potassium or inhalations of chloroform. Warm baths, followed by massage, often relieve spasms and release tense muscles. An oleaginous laxative may always be given with benefit. Mr. Kato, in conclusion, said that a dark, quiet, well-ventilated place was infinitely better for the patient than noisy surroundings, and that the prognosis was fairly favorable provided that the patient be attended at the proper time with energetic measures.

Before making any remarks on the subject of eclampsia Dr. McEachran complimented the essayist on the excellent paper which he had read and upon the exceedingly good manner in which it was delivered, in what was to Mr. Kato a foreign language. Dr. McEachran had most frequently seen eclampsia in bitches left with too many pups to suckle, the excessive secretion of milk causing a depletion of the blood, which resulted in an ænemic condition of the various nerve centres. Treatment was, as a rule, attended with success and the disease need not be looked upon as a formidable one by the young practitioner.

Before closing his remarks Dr. McEachran extended on behalf of the society a very hearty welcome to Dr. Alloway, who subsequently made a few remarks, commencing by recalling his early days in college, he having purchased the animal whose skeleton now adorns our lecture room, some thirty-one years ago. Dr. Alloway, who has recently returned from the Western States, spoke of the comparatively high value of dogs in those regions and pointed out to the students the necessity of their giving up the old habit of devoting all their attention to the study of the equine race. Dr. Mills also complimented Mr. Kato, and, in continuing, said that he had found the Japanese spaniels more delicate than any other of the toy breed. He had never had a case of eclampsia in his own kennels, which fortunate state of affairs he attributed to his bitches being regularly exercised and never being allowed to suckle too many pups. Before taking up the subject of eclampsia, Dr. Adami expressed his pleasure at being with the society once more. Eclampsia of the bitch differed very widely from eclampsia of the human subject, although in both the condition was closely allied with the puerperal state; in the human being it was a far more serious disease. Observations now seemed to point to some alteration of the blood. As we pass along we must search for

a solution of the problem. Patches of coagulated necrosis were commonly seen in the liver, more frequently in this than any other disease. These might possibly be due to thrombosis. So far no bacteria have been found in them, and it is supposed that this condition may be produced by toxine. Hitherto all attempts at finding a specific microbe have failed.

Mr. Groves then reported the following interesting case :

The subject, a male dog, ten years old, of spaniel breed, brought to the college for treatment. History.—The dog being unable to walk in a straight line, and often falling down and lying down more than usual. This condition was noticed for about two weeks; the symptoms presented were a general debilitated condition, coat rough and dry, the tongue protruding from the left side of the mouth; the neck was straight and sometimes inclined to the left; the body resembled the segment of a large circle, with its centre on the right side, lameness in the right foreleg and general paresis. Diagnosis.—Pressure on base of the brain, probably a tumor. Prognosis unfavorable. Treatment.—Useless, but the owner desired that we should do something, and he was given *nux vomica*, iodide of potash and gentian. Two months afterward the animal was brought back to be destroyed. The symptoms were much aggravated, the dog lying most of the time, but he could get up and when he tried to go fast fell down. When standing would brace himself against some object and when walking would walk almost sideways, always going to the right. His head was turned on its axis from the right to left, the right side being the highest. This was not continually the case, for he would at times hold his head straight. His vocal power was lost and he had difficulty in swallowing. Sight was not impaired. The dog was chloroformed and post-mortem held, which resulted as follows: The various organs of the body were found to be normal, but on the inferior part of the medulla there was found a tumor about the size of a marble. It was attached closely to the wall of the foramen magnum, so that it had to be separated with a knife. It was semi-circular in form, with a broad base.

Dr. Gunn considered this an operable case and a surgeon would have been guided to the right lobe of the cerebellum as the seat of tumor. The diagnosis would have been wrong, but the surgeon's incision would have been over the tumor, which could have been shelled out with a possible good result. The recognized symptoms of the disease of the cerebellum are almost exactly those given by Mr. Groves, viz.: (A) Rotation of

the body away from the line on the opposite side to tumor. (B) The neck was twisted and chin turned to side of tumor. (C) Bending of the body, the concavity being on the affected side. (D) Monobrachial paralysis, which is not very definite in this case. (E) Eye symptoms were not much observed in this dog. The relative size of the pupils was different, but there seems to have been no *mystagmus* nor *strabismus*, as is common in cerebellar trouble. Convulsive and choreic seizures and vomiting are reported as absent here, but usual in pure cerebellar trouble.

Dr. Mills regretted that the symptoms produced in the eye and ear were not more closely noted, and said that the views held upon functions of the cerebellum were very divergent. He had unfortunately never seen a case of cerebellar disease in the dog.

After a few words from the Chairman the meeting adjourned.

The regular meeting of this association was held in the Library of the College, on the evening of November 17. The President, Dr. Adami, occupied the chair. There were also present the Hon. President, Dr. D. McEachran, and Drs. Baker and Sugden. After reading the minutes of the last meeting and disposing of other routine business, the Chairman called upon Dr. Sugden for his case report on "Intestinal Obstruction." Subject was a collic bitch, seven months old. This dog had been taken suddenly and noticeably ill, while playing on the street, uttering most heartrending cries and showing signs of great pain. She was given morphia, gr. ss, and brought to the college. Enemas were used freely and a dose of castor oil administered. Temperature 107. As the pain had not moderated in the slightest degree, another dose of morphia, gr. ss, was injected, and this seemed to have no effect; so in 20 minutes another dose of same size was given. All the time the dog was moaning and frequently yelling with pain, while pressure over the region of the stomach increased the pain and produced violent straining. Feeling that a foreign body was the cause of all this pain, she was given another dose of castor oil, combined with 30 drops of tincture of opium. The dog had now been in violent pain for two hours, and, beginning to feel somewhat desperate, he gave her another dose of morphia, gr. ss, but this had no effect; and she was then put under the influence of the A C E mixture, which kept her unconscious for about 70 minutes, by which time the morphia had produced the desired

effect. This was about 10.30 P. M., the dog having had the first dose about 8 o'clock. At half-past-one she was sleeping, only emitting an occasional groan. The next morning, to his surprise, he found her alive and in a semi-conscious condition, but apparently free from pain. At 8 o'clock she was given a little beef tea, and shortly afterwards her bowels moved slightly; and by evening she was sufficiently recovered to walk around, and her owner took her home, as he did not want to go to any further expense. Dr. Sugden heard that the next morning she passed a potato as big as a pigeon's egg and a worm which the owner described as being 6 to 8 inches long, with a green back and white belly; but, unfortunately, both potato and worm had been thrown away. Dr. Sugden saw the patient since her removal and she was enjoying the best of health.

This was followed by an essay by Mr. Gellatly on "Meat and Milk of Tuberculous Animals as a Menace to Public Health," which proved to be a most interesting and valuable paper. He considered this as compared with other diseases to which man is liable, to be the one which must be recognized as deserving the greatest attention from sanitarians, health officers, and physicians. It was found to be one of the oldest diseases mentioned, as Moses in his law forbade the consumption of the meat of animals affected by "phthisis," and at later dates frequent mention relative to this disease was made. Tuberculosis was found to exist in every type and breed of cattle, and found its easiest victims among those kept especially for milk purposes. The homes of the wealthiest as well as those of the poorest testify that our meat and milk supply cause thousands of deaths from this disease every day. If all the victims of consumption who die annually lived in one country, newspapers would be crowded with stories about the most dreadful pestilence that ever visited the earth. Insurance companies could testify that a great proportion of the deaths in their respective orders were due to tuberculosis, and these deaths were found to be among men who had been examined as to their soundness when admitted to the order and found healthy. Some may have had latent tuberculosis when examined, but it can be proven that many contracted the disease after examination, and can be traced to the ingestion of milk and meat of tuberculous animals.

Mr. Gellatly cited instances from observation recorded by various authors who had proved that the germ of tuberculosis existed in milk. It was also shown to have lived in butter for

a period of 120 days, and in cheese for as long as thirty-five days. A Berlin bacteriologist had been successful in inoculating a series of 250 guinea pigs from butter purchased at random on the market place, and pathologists had found that at least one-fifth of the consumptive diseases prevalent among children can be traced to the infection of milk. Mr. Gellatly said it had not been fully demonstrated that the disease could be contracted from eating meat of tuberculous animals, but numerous experiments had been successful in inoculating various animals with the disease from the juice pressed out of underdone steak. Heat, he said, might destroy the vitality of the bacilli if carried up to a certain point, but in many cases meat was preferred rare and in cooking meat in joints a great part of it was not raised to a sufficient degree to destroy the bacilli. Mr. Gellatly went on to discuss the contagious nature of the disease and the various ways it could be transmitted, but contended that there was no doubt but that the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter. As to the remedy, the essayist said he would not suggest anything further than that laid down on pages 7, 8 and 11 of a little pamphlet published by Dr. McEachran, entitled "Tuberculosis in Cattle." In conclusion, he said that the veterinary surgeon when called upon to give his opinion should consider the sacredness of his position, and, even if he chance to offend his client, should do his duty toward his fellow man.

The Chairman complimented the essayist on the preparation and delivery of his paper, and a discussion ensued, strengthened by valuable information from the President, Dr. McEachran, who said that his attention had been called to the disease about thirty years ago, when he found that the disease existed among cattle on the farms in the neighborhood of Montreal. At that time he read a paper on the subject before the Medico-Chirurgical Society, but very few at that time recognized the disease as communicable from animal to man. A few years ago he again read a paper before the same society on the subject, and found not a single dissenting voice from any of his remarks, and the true nature of the disease was better understood and was looked upon as very dangerous, and readily communicable from animal to man.

Dr. Adami said it was not necessary to have lesions in the udder in order to have bacilli in the milk. In experiments conducted by Dr. McEachran and himself, that in the case of seven

out of ten cows affected by the disease and without lesions in the udder, they found the milk virulent and on inoculation produced the disease; but that we could have the disease acquired *in utero*, as Prof. Bang had found lesions in the liver of newly-born calves.

Mr. Groves was appointed essayist for the next meeting, and Mr. Hammond to report a case.

There being no further business, the proceedings closed.

JAS. MCGREGOR, *Secretary-Treasurer*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular annual meeting of the Veterinary Medical Association of New York County was called to order Wednesday, December 7th, in room 37, New York Academy of Medicine, at 8.45 P. M., by President Robertson.

On roll-call the following members responded: Drs. Ackerman, Bell, J. S. Cattanch, Clayton, Dickson, Delaney, Ellis, Farley, Gill, Grenside, Goubeaud, Hanson, Lellman, O'Shea, and Robertson. As visitors, Prof. Olof Schwarzkopf, Borough of Queens; Drs. Jno. J. Hayes, L. Nicholas, Wm. M. MacKellar, and Chas. Hall, Borough of Manhattan; also Wm. H. Hayes, John Hayes, Jr., Clifford Atkins, J. William Fink, Harry Hamlin, Warren Fretz, and W. A. Young, students American Veterinary College.

The minutes of the previous meeting were then read, approved and ordered placed on file.

The Board of Censors then recommended for membership in the association the names of Chas. E. Clayton, D. V. S., graduate of the American Veterinary College, whose application had come before them in regular form, with Robert W. Ellis and Jas. L. Robertson as vouchers, and Geo. J. Goubeaud, D. V. S., graduate of the American Veterinary College, whose application was also in regular form, with E. B. Ackerman and R. R. Bell as vouchers.

An application for honorary membership in the association, approved by the Board of Censors, was also presented as follows:

ACADEMY OF MEDICINE, NEW YORK CITY, Dec. 7, 1898.

According to Art. X. of the Constitution and By-Laws of the Vet. Med. Ass'n of New York Co., we hereby propose for honorary membership, Hon. Timothy P. Sullivan, of New York County, Borough of Manhattan. The gentleman aided this Association in the passage of the bill exempting the veterinary surgeons from jury duty.

He had the bill passed in the Assembly, this year, 1898.

(Signed) { ARTHUR O'SHEA,
H. D. GILL,
ROSCOE R. BELL,
J. L. ROBERTSON.

Drs. Clayton and Goubeaud were declared members of the association, and Hon. Timothy P. Sullivan an honorary member of the same.

Dr. Lellman then read a very scientific paper on "Hydrocephalus in the Horse,"* with microscopical demonstrations, the specimens being exceptionally fine. After the discussion which followed, a vote of thanks was tendered to Dr. Lellman from the association, as well as one personally expressed by the President.

Dr. Goubeaud, of the Borough of Brooklyn, then read a paper entitled "A New Method of Employing Charcoal in the Treatment of Acute Indigestion in Horses."† This paper opened up a field for animated discussion, which was pretty generally indulged in by the members. A hearty vote of thanks was tendered to Dr. Goubeaud.

The Judiciary Committee having nothing to report, the Committee on Resolutions on the death of Dr. Machan was called upon by the President, and offered the following report:

WHEREAS, It has pleased the Almighty to remove from our midst Dr. William Machan; and, whereas, our relations with him in the veterinary profession makes it fitting that the members of this Society record their appreciation of him; therefore

Resolved, That the very sad and sudden removal of such a man leaves a vacancy that will be deeply realized by the members of the profession.

Resolved, That we express deep sympathy with the afflicted relatives, and also be it

Resolved, That this be spread in full in the minute book, a copy be sent to the relatives, and published in the veterinary journals.

(Signed) { H. D. HANSON, D.V.S., *Chairman*.
H. D. GILL, V.S.
J. L. ROBERTSON, M.D.V.S.

Dec. 8, 1898.

Moved and seconded that the same be accepted and placed on file. Carried.

Ways and Means Committee, Dr. Bell, Chairman, promised to continue his very interesting programmes, samples of which the association have been enjoying for several meetings past. The usual routine of business being concluded, and this being

* Will be published in an early issue of the REVIEW.

† Published elsewhere in this issue.

the annual meeting, elections of officers for the ensuing year of 1899 was next in order.

Dr. H. D. Gill, after a few very neat and fitting remarks, nominated for President Dr. James L. Robertson. The nominations being immediately closed, the by-laws were suspended and Dr. Robertson was elected by acclamation. The same course was pursued with the rest of the nominees, which resulted in the election for Vice-President of Dr. H. D. Gill, for Secretary Dr. Robert W. Ellis, and for Treasurer Dr. H. D. Hanson.

Dr. Hanson, who had served in the capacity of Treasurer during the year just ended, then rendered a "Treasurer's report." Moved and seconded that the report be accepted. Moved and seconded that the meeting adjourn.

ROBERT W. ELLIS, *Secretary*.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The sixteenth annual meeting was held at the Sherman House, Chicago, November 16 and 17, and was called to order at two o'clock P. M., Dr. Babb, the President, in the chair. The following members answered to roll-call: Drs. Babb, Baker (A. H.), Baker (S. S.), Campbell, Martin, Gyzell, Walker, Sigrosser, Nattress, Quitman, Robertson, Welch, Hughes, C. A. Pierce and Brown.

The minutes of the preceding meeting were read and approved. Report of the Secretary showed a gain of seven new members.

Dr. W. J. Martin, of Kankakee, read a paper on interesting cases in practice,* which elicited a full discussion.

The following new members were proposed and elected: Dr. Albert C. Worms and Dr. Christ F. Griener.

Dr. Robertson gave us quite a dissertation on a case of tetanus in the horse.

A communication was read from Dr. A. T. Peters, of Nebraska, requesting an opinion as to the advisability of forming a Trans-Mississippi Association. Moved by Dr. A. H. Baker, seconded by Dr. Quitman: That it is the sense of the meeting, that the forming of such an association would be detrimental to the profession and the National Association. Moved by Dr. Sigrosser, seconded by Dr. Walker, that the discussion on the subject be deferred till the 17th. Carried.

* One of Dr. Martin's case reports is printed elsewhere in this issue.

On motion meeting adjourned.

November 17.—The meeting was called to order by the President at 11 o'clock A. M. Dr. Cox, of the Pasteur Remedy Co., read a very interesting paper on "Modern Therapeutic Remedies," in place of Mr. Harold Sorby. Moved by Dr. Welch, seconded by Dr. Martin, that a vote of thanks be tendered Dr. Cox for his interesting paper. Carried.

Moved by Dr. Walker, seconded by Dr. Nattress, that while we are waiting for the essayists to arrive, we proceed to elect officers for the ensuing year. Carried. The Chair appointed Drs. Walker and Nattress as tellers. Nominations for President being in order, Dr. W. J. Martin, of Kankakee, was nominated by Dr. S. S. Baker. Moved by Dr. Walker, seconded by Dr. Welch, that the nominations close, and that the Secretary be instructed to cast a ballot electing Dr. Martin unanimously. Carried.

Dr. Walker placed in nomination for Vice-President the name of Dr. C. A. Pierce, of Elgin. Moved by Dr. Nattress, seconded by Dr. Welch, that the nominations close and the Secretary be instructed to cast the ballot. Carried.

Dr. Nattress placed in nomination for Secretary the name of Dr. S. S. Baker, of Chicago. Moved by Dr. Welch, seconded by Dr. Brown, that the nominations close and that the Treasurer be instructed to cast a ballot electing Dr. Baker unanimously. Carried.

For Treasurer, Dr. Brown placed in nomination the name of Dr. R. G. Walker, of Chicago. Moved by Dr. Pierce, seconded by Dr. Sigrosser, that the nominations close and the Secretary cast the ballot. Carried.

For Board of Censors, the names of Drs. Nattress (Chairman), Brown and Worms were placed in nomination by Dr. S. S. Baker. Moved by Dr. Walker, seconded by Dr. Griner, that the nominations close and that the Secretary be instructed to cast the ballot. The Secretary having cast the requisite number of ballots, the Chair declared the new officers duly elected by acclamation.

The meeting then adjourned for dinner.

The meeting reconvened at 2 o'clock P. M.

Dr. A. H. Baker, as Chairman of the Board of Censors for the past year, read the following report: "To the Illinois State Veterinary Medical Association, in annual convention assembled: In the matter pertaining to the charges preferred against Dr. Quitman, a member of our honorable body, the Board of

Censors beg leave to make the following report, viz.: Dr. Quitman appeared before the Board of Censors, and acknowledged the justice of said charges, stating that he was sorry, and had already stopped the irregular advertising. The Board of Censors, therefore, recommend that he be acquitted and placed in good standing again. [Signed] A. H. Baker and W. H. Welch." Moved by Dr. Sigrosser, seconded by Dr. Walker, that the report be adopted as read. Carried.

Dr. A. H. Baker read a very exhaustive paper on the "Pathogenesis and Pathology of Colic," which brought out a lengthy discussion.

Dr. Hughes' paper being called for, the doctor stated that, on account of his very extensive practice, he had been unable to prepare a paper, but that he would give us a report of a few cases that were out of the ordinary run, which he did in his inimitable way. After the discussion closed, Dr. Babb, the retiring President, introduced his successor, Dr. Martin, who on taking the chair said he would endeavor to fill the position as well, if not better, than his predecessors.

Dr. Peters' communication was reread for the benefit of those who had not heard it. After liberal discussion, it was moved by Dr. A. H. Baker, seconded by Dr. Welch, that we as a body decline to participate in the formation of a Trans-Mississippi Association, and that the Secretary be instructed to notify Dr. Peters to that effect. Carried.

Moved by Dr. A. H. Baker, seconded by Dr. Quitman, that we amend Section I, Article XIV, so that it will read: Each applicant, on being admitted to membership, shall pay a fee of three dollars, and shall annually thereafter pay one dollar in advance to the Association. Laid over till next meeting.

The following resolution was offered by Dr. A. H. Baker:

Resolved, That we do hereby protest against the action of the United States Patent Office in having granted letters patent to one Emil Behring, covering the method of producing diphtheria antitoxin serum in the United States; and, whereas, it is the opinion of this Association, that the said Emil Behring is not the original discoverer of the method whereby diphtheria antitoxin serum is now produced; and it is further

Resolved, That it is a wrong to suffering humanity to grant a monopoly to the said Behring in the manufacturing of diphtheria antitoxin serum, and we ask, as a matter of common justice, that the patent granted to Emil Behring be revoked; and it is further

Resolved, That a copy of the resolution be spread upon the records of this Association, and that a copy be sent to each member of Congress from Illinois.

Moved by Dr. Sigrosser, seconded by Dr. Walker, that the resolution be adopted as read. Carried.

Moved by Dr. Hughes, seconded by Dr. Welch, that a Committee on Legislation, consisting of twelve members, be appointed to draft a bill regulating the practice of veterinary medicine in this State. Carried.

Moved by Dr. Babb, seconded by Dr. Nattress, that the semi-annual meeting be held in Springfield. Carried.

On motion meeting adjourned.

S. S. BAKER, *Secretary*.

VERMONT STATE VETERINARY MEDICAL ASSOCIATION.

It gives me great pleasure to inform you that Vermont has organized an association under the name of Vermont State Veterinary Medical Association. The first meeting was held at Montpelier, Vt., Oct. 25th, and the officers elected were: F. A. Rich; V. S., M. D., Burlington, President; H. W. Burgess, D. V. S., Bennington, Vice-President; Ian W. Parks, V. S., Montpelier, Secretary; H. Buss, V. S., St. Johnsbury, Treasurer. Executive Committee:—G. A. Miller, D. V. S., Burlington; J. F. Page, D. V. S., Manchester Centre; E. W. Culley, V. S., Morrisville; H. Buss, V. S., St. Johnsbury; J. C. Parker, D. V. S., St. Albans; W. L. Adams, V. S., Hardwick. Committee on Credentials—H. W. Burgess, D. V. S., Bennington; C. L. Morin, D. V. S., St. Albans; A. B. Gay, V. S., Randolph.

The meeting was well attended and a success as a primary organization. No business was done except the election of officers and adoption of By-Laws. However, this is a step in the right direction, and it will elevate the profession and enable the members to work together for the advancement of veterinary science. There is no provision made in the Vermont laws for the protection of qualified practitioners. It will be the aim of this association to obtain such a law, thereby protecting the practitioner and the people.

IAN W. PARKS, V. S., *Secretary*.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

President Clement has promulgated the following list of Resident State Secretaries: *Alabama*, R. H. Drummond, Bir-

mingham ; *Arizona*, J. C. Norton, Phoenix ; *California*, Fred C. Pierce, 1724 Webster St., Oakland ; *Connecticut*, R. P. Lyman, 328 Asylum St., Hartford ; *Delaware*, H. P. Eves, 507 W. 9th St., Wilmington ; *District of Columbia*, A. M. Farrington, Dept. of Agr., Washington ; *Georgia*, Geo. B. Blackinan, Rome ; *Illinois*, E. M. Nighbert, Mt. Sterling ; *Indiana*, J. R. Mitchell, Evansville ; *Iowa*, T. A. Brown, Chariton ; *Kansas*, W. N. D. Bird, Arkansas City ; *Kentucky*, J. W. Jamieson, Paris ; *Louisiana*, W. H. Dalrymple, Baton Rouge ; *Maine*, G. H. Bailey, Deering ; *Maryland*, Wm. Dougherty, 1035 Cathedral St., Baltimore ; *Massachusetts*, E. H. Holden, Springfield ; *Michigan*, S. Brenton, 83 5th St., Detroit ; *Minnesota*, C. E. Cotton, Minneapolis ; *Mississippi*, J. C. Robert, Agricultural College ; *Missouri*, Chas. Ellis, 3230 Locust St., St. Louis ; *Montana*, M. E. Knowles, Butte ; *Nebraska*, V. Schaefer, Tekamah ; *New Hampshire*, Lemuel Pope, Jr., Portsmouth ; *New Jersey*, J. P. Lowe, Bloomfield Ave., Passaic ; *New York*, W. H. Kelly, 195 Western Ave., Albany ; *North Carolina*, A. S. Wheeler, Biltmore ; *North Dakota*, T. D. Hinebaugh, Fargo ; *Ohio*, T. Bent Cotton, Mt. Vernon ; *Pennsylvania*, W. H. Ridge, Trevoise ; *South Carolina*, Benj. McInnes, Charleston ; *South Dakota*, M. J. Treacy, Fort Meade ; *Tennessee*, Joseph Plaskett, 529 Broad St., Nashville ; *Texas*, M. Francis, College Station ; *Virginia*, E. P. Niles, Blacksburg ; *Washington*, S. B. Nelson, Pullman ; *West Virginia*, L. N. Reefer, 1406 Chapline St., Wheeling ; *Canada*, W. J. Hinman, Winnipeg, Manitoba.

VETERINARY MEDICAL SOCIETY UNIVERSITY OF PENNSYLVANIA.

The fourth regular meeting of the year was called to order November 18th, at 8 o'clock. Mr. Taylor was appointed critic. After the transaction of the business pertaining to the welfare of the society and its members, the literary programme of the evening was next in order, and the society had the pleasure of being addressed by its honorary president, Dr. John W. Adams; his subject being "Flat Worms of Domestic Animals." The enthusiasm shown upon his being introduced and likewise at the end of his lecture clearly demonstrated the fact that the members were greatly pleased with it. An important feature of his discourse was the charts he used, making his subject better understood. A vote of thanks was extended to Dr. Adams. The meeting adjourned at 9.30 P. M.

The fifth regular meeting of the year was called to order December 2d, at 8 o'clock. Mr. Cheney was appointed critic. This meeting was entirely a business meeting, as there was considerable matter pertaining to different subjects relative to the society's annual banquet, etc. The names of Messrs. Horner, Bassler and Hart were proposed and duly elected to membership. The meeting adjourned at 9.50 P. M.

L. A. NOLAN, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF ONTARIO VETERINARY COLLEGE.

The first meeting of this society was held on the evening of October 14th. Prof. A. Smith, F. R. C. V. S., the principal, presiding.

Mr. Wesley M. Goff read an excellent essay on "Bacteria"; Mr. G. Jerome brought forward a carefully-prepared paper on "The Progress of Veterinary Science"; Mr. F. J. Kernan read a paper on "The Examination of Horses for Soundness"; and Mr. J. Lee Shorey read a communication on "Neurectomy." The discussions following each paper were animated and interesting.

The second meeting was held on the evening of October 21st. Mr. Wentzele read an exhaustive paper on "Open Joint"; Mr. W. A. Sproule read a paper on "Castration," describing different methods of operating, and Mr. Charles Manning read a good paper on "Parturient Apoplexy." The papers were ably discussed by several of the members of the senior class. The one on "Parturient Apoplexy" elicited an interesting discussion on the new treatment of that disease called "Schmidt's treatment," and its cause ascribed to toxins developed in the mammary gland at that time.

These meetings and the discussions arising at them must prove of much benefit to the students attending the college.

W. M. GOFF, *Secretary*.

NEWS AND ITEMS.

E. BOVETTE, V. S., of Denver, Col., lost his life while fishing near that city in October.

OSCAR VERSCHULDEN, of St. Mary's, Kansas, conducts an undertaking business as a side line to veterinary science.

OWING to ill health, Dr. Harry V. Good, of St. Joseph, Mo.,

has retired from practice, and is now engaged as a life insurance agent.

THE question of municipal meat and milk inspection is being agitated in St. Joseph, Mo., and the organization of a system is reasonably certain.

MRS. JOHN FORBES and Mrs. Henry Washburn were interested listeners at the December meeting of the Missouri Valley Veterinary Association.

DRS. S. E. BENNETT, R. C. Moore, B. F. Kaupp, F. C. McCurdy, John S. Buckley and S. Stewart went from Kansas City to attend the meeting at St. Joseph, Mo.

DR. E. J. NETHERTON, of St. Joseph, Mo., has recently established a veterinary infirmary. It is the only one in the city and it is believed will be a profitable venture.

THE IOWA VETERINARY MEDICAL ASSOCIATION holds its annual meeting January 10th and 11th, and Secretary Brown writes that he looks forward to a splendid meeting.

DR. ALBERT LONG, of Lewiston, Me., and Dr. H. D. Fenimore, of Knoxville, Tenn., were recently appointed as inspectors in the Bureau of Animal Industry and assigned to Kansas City for duty.

THE MISSOURI STATE VETERINARY MEDICAL ASSOCIATION held its annual meeting at Sedalia, Mo., Dec. 28th. The subject of veterinary legislation was the principal theme of discussion.

OSCAR VERSCHULDEN, a member of the Missouri Valley Veterinary Association, has recently returned from a trip to Europe. In far-away Belgium Dr. Verschelden was married to an estimable young lady. May prosperity and happiness reward them.

DR. HANSON'S BOOK, "Practice of Equine Medicine," is about ready for delivery to those who have ordered it in advance. We will review it in the February issue. His advertisement contains some flattering notices from those who have read the advance sheets.

DR. C. H. ZINK, an Inspector of the Bureau of Animal Industry, who had been in Kansas City about four weeks familiarizing himself with the details of microscopic inspection and supervision of pork products, has been placed in charge of station at Buffalo.

DR. ROBT. ROBB, who is engaged in the practice of human medicine at Littleton, Iowa, took the last Civil Service examination for inspector in the B. A. I. Dr. Robb was formerly a

veterinarian at Terre Haute, Ind., but gave up practice when the crash in horses came, and studied human medicine.

DR. JAMES HANSEN, who has been located at Clounda, Iowa, for the past seven years, is a senior student at the Fensworth Medical College, of St. Joseph, Mo. He will engage in human practice as soon as graduated. Dr. T. W. Watson formerly of Marshalltown, Iowa, succeeds to his practice.

THE MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION is composed almost exclusively of members of the meat inspection service of the Bureau of Animal Industry, and its deliberations are confined almost wholly to the subject which appeals practically to them. The late meeting was a very profitable one.

ALUMNI ASSOCIATION MCGILL UNIVERSITY.—A call has been issued to the graduates of the Faculty of Comparative Medicine of McGill University to assemble at the college in February for the purpose of reunion and to form an association of the alumni practicing in Canada and the United States. Those of Massachusetts have long had such an organization.

VIRGINIA CATTLE QUARANTINE.—The Board of Control of the Virginia Experiment Station, which regulates the cattle quarantine, has decided to establish a union stock yards at Richmond, with a branch station at Norfolk, at each of which arrangements will be made for dipping cattle in the tick-destroying solution recommended by the Bureau of Animal Industry. Among the members of the Board are mentioned veterinarians E. P. Niles and Charles McCulloch, of Blacksburg, who are State veterinarians.

DR. W. J. MARTIN, of Kankakee, Ill., was elected President of the Illinois State Veterinary Medical Association at its December meeting. Dr. Martin is one of the most energetic and public-spirited veterinarians in the country, and the association is to be congratulated upon its choice, for in honoring the man they have doubly honored themselves, and have secured the active services of one whose every aspiration is the good of the profession. Already he enters upon his work by appealing to the profession of his State to rally for legislative work at the present session.

GOVERNMENT MEAT INSPECTION.—The latest figures on Government meat inspection are just submitted in the report of Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, for the fiscal year. Meat inspection has been in operation at 135 abattoirs, as against 128 for the previous year, and in thirty-five

cities as against thirty-three in 1897. The number of animals inspected before slaughter numbered 51,335,398. Of these 9,228,273 were cattle, 10,028,287 were sheep, 468,199 calves, and 31,610,675 hogs, showing a total gain over 1897 of 9,025,291 animals. At the time of slaughter 31,116,833 animals were inspected and 63,662 were rejected; 91,508 carcasses and 48,189 parts of carcasses were condemned. The meat-inspection stamp was affixed to 14,583,780 packages of mutton and beef and pork products, of which 374,131 contained microscopically-examined pork.

GREAT BRITAIN TO FIGHT TUBERCULOSIS—PRINCE OF WALES PRESIDES AT A MEETING TO PROMOTE WAR AGAINST IT.—A despatch from London, dated Dec. 20th, says: "The Prince of Wales presided at a private meeting at Marlborough House to-day, convened by him to promote a war against tuberculosis. The Marquis of Salisbury, the Earl of Rosebery and a number of noted scientists and physicians spoke of the urgent necessity of educating the people in the means of preventing consumption and of checking the spread of tuberculous diseases among cattle. Special stress was laid upon the importance of erecting open air sanatoria. The Prince of Wales, who promised his heartiest support to the movement, said Great Britain ought to follow the great example set before her in the United States, Germany and elsewhere in the effort to stamp out the disease. He mentioned the fact that the Queen had ordered the destruction of thirty-six of her dairy cows which had been found tuberculous. It was an example, he urged, such as the farmers ought to follow."

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AMERICAN VETERINARY REVIEW.

FEBRUARY, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLES.

SEVENTH INTERNATIONAL VETERINARY CONGRESS.—We have on other occasions recorded the great international event which is to take place this year at Baden-Baden, and have attempted to draw the attention of the readers of the REVIEW to the importance of the work which is to be carried on at this great international gathering. Since our communication, we have received the following, which lays before the public the last programme and the series of various reports which will be presented, with the names of the professional authorities who will be heard. Representatives from England, Hungary, France, Holland, Germany, Denmark, Belgium, Austria, Sweden, Italy and Russia, will be at the Congress as reporters upon the many and various subjects of importance, all related to veterinary medicine and international sanitary veterinary science.

At this late hour the United States is not yet officially represented, but no doubt it will be, as already invitations have been given to veterinarians which will probably be accepted.

From all this it is evident that our brethren—veterinary practitioners, scientists and sanitarians—cannot very well abstain from becoming members of the Congress, and if possible contributing by their presence to its success. The last programme reads as follows :

SEVENTH INTERNATIONAL VETERINARY CONGRESS, AT BADEN-BADEN,
AUGUST 9 to 14, 1899.

The following gentlemen have undertaken to draw up reports of the

subjects already announced for transaction and discussion by the Congress :

a. *Precautionary measures against the spread of epidemic diseases in consequence of international trade in animals.*

Reporters : *Cope*, President of the veterinary surgery section of the Chamber of Agriculture, London ; *Dr. Hutyra*, Professor and Head of the Veterinary Academy in Budapest ; *Leblanc*, veterinary surgeon for epidemic diseases, Member of the Academy of Medicine in Paris ; *Vollers*, Government veterinary surgeon in Hamburg. (Swiss reporters are still wanting.)

b. 1. *The prevention of tuberculosis among domestic animals.*

Reporters : *Dr. Bang*, Professor at the Veterinary College in Copenhagen ; *Dr. Siedamgrotzky*, Privy Medical Councillor, Professor in the Royal Veterinary College in Dresden, district veterinary surgeon in the Kingdom of Saxony ; *Dr. Stubbé*, Veterinary Inspector of the Ministry of Agriculture in Brussels.

b. 2. *The prevention of the use of the flesh and milk of animals suffering from tuberculosis.*

Reporters : *Butel*, veterinary surgeon to the slaughter-house in Meaux ; *de Tong*, Government veterinary surgeon in Leyden ; *Dr. Ostertag*, Professor at the Royal Veterinary College in Berlin.

b. 3. *The latest suggestions for an effectual meat inspection.*

Reporters : *Dr. Edelmann*, superintendent of meat inspection in Dresden ; *Kjerulf*, Government veterinary surgeon in Stockholm ; *Postolka*, imperial official veterinary surgeon in Vienna.

c. *The prevention of foot-and-mouth disease.*

Reporters : *Paul Cagny*, veterinary surgeon in Senlis ; *Cope*, as above, of London ; *Dr. Dammann*, Privy and Medical Councillor, Professor and Head of the Royal Veterinary College in Hanover ; *Dr. Furtuna*, President of the Veterinary Office in Bucharest ; *Hafner*, Councillor and veterinary referee of the Grand Ducal Ministry of the Interior in Karlsruhe ; *Hess*, Professor at the Veterinary School in Berne ; *Lindquist*, Professor and Head of the Veterinary College in Stockholm ; *Dr. Wirtz*, Professor and Head of the Veterinary College in Utrecht (has not yet given a decided answer in the affirmative).

d. *The prevention of swine fever.*

Reporters : *Leclainche*, Professor in the Veterinary School at Toulouse ; *Dr. Lorenz*, Grand Ducal medical officer in Darmstadt ; *Dr. Perroncito*, Professor at the Veterinary Academy in Turin.

e. *The extension of veterinary instruction, especially by the establishment of institutions for experiments in diseases and by founding chairs of comparative medicine in colleges for veterinary surgery.*

Reporters : *Dégive*, Professor and Head of the Veterinary College in Brussels ; *Dr. Kitt*, Professor at the Royal Veterinary College in Munich ; *Dr. Malkmuss*, Professor at the Royal Veterinary College in Hanover ; *Dr. Nocard*, Professor at the Veterinary College of Alfort, Paris, Member of the Academy of Medicine ; *Dr. Raupach*, Councillor, Professor and Head of the Imperial Veterinary Institute in Dorpat ; *Dr. Schütz*, Privy Councillor, Professor at the Royal Veterinary College in Berlin.

f. *Conclusion of the work of drawing up a universal anatomical nomenclature in veterinary medicine, in accordance with resolutions passed by the VI. Congress.*

Reporters : *Dr. Ellenberger*, Medical Councillor, Professor at the Royal Veterinary College in Dresden ; *Dr. Sussdorf*, Professor at the Royal Veterinary College in Stuttgart.

g. *Veterinary officials.*

Reporter : *Dr. Lydtin*, Privy Councillor in Baden-Baden.

* * *

MOLASSES AS FOOD.—Important experiments have been made lately at the School of Practical Agriculture, of Berthouval, upon the use of molasses as food for domestic animals, which once more confirm the fact already known that the remains obtained in the fabrication of sugar may be utilized with advantage by agriculture.

These experiments were made with sheep, heifers, pigs, milking cows, and horses. Molasses was given : to sheep in the dose of 300 grammes a day, mixed with roots ; to pigs, 400 grammes daily, with cooked crushed potatoes ; to heifers, 800 grammes, with cut beets. In all the cases it has given an increase to the size of the animal. Given to milking cows, it has produced only a small increase in the milk secretion. Horses received one kilogramme of molasses, taking the place of one kilogramme of oats.

The conclusions of the experimenters, published in the *Annales Agronomiques*, are as follows :

“(1) Molasses given in the ration of sheep, pigs, or heifers, increases the weight of these animals quite rapidly, results which prove that it can be used as food.

“(2) Under the influence of the process of feeding with a

mixture of molasses, there is an increase of the milk secretion, but scarcely sufficient to justify its employment.

“(3) Molasses is an excellent food for horses. These animals get used to it easily, and seem not to be inconvenienced by it; they remain as vigorous and gain flesh.

“(4) Molasses can be used with advantage to induce the consumption of spoiled fodder, to make food more appetizing and easy to digest.

“In other words, and in a general way, it is proposed to consider molasses not only as an accidental resource in case of short production of fodder, but also and specially as a regular food, producing in ordinary times results which are advantageous to the point of view of the feeding of animals during fattening.”

These results obtained by the experiments of MM. Dickson and Malpraux, are of great importance, and will prove of great value to agriculturists. Veterinarians may also take advantage of them, not only during health, but principally during sickness. Horses generally are fond of sweets; molasses is frequently used for the administration of drugs in the shape of electuaries, and is readily taken by the sick. If animals fed on it remain vigorous and gain flesh, it is evident that it may be very advantageous in many forms of disease.

* * *

AZOTURIA — HÆMOGLOBINURIA. — If the symptomatology and etiology of this affection are already well known, the same cannot be said of its pathology, and, notwithstanding all the theories advanced, for many the explanation of the many phenomena which occur so suddenly, and too often so fatally, remain yet a problem unsolved. The brilliant theory which English-speaking veterinarians have admitted from the observations and writings of the celebrated veterinarian of Edinburgh, Professor W. Williams, has received lately at the Société Centrale from the hands of Prof. Lignières an attack, which, if not yet positively successful, has a tendency at least to place it only in the rank of a predisposing cause. For Prof. Lignières the

plethora, which results from heavy feeding while the animal is kept idle for some time, the return to work after a rest of a short time, remain predisposing causes of the first order, but from the observations that he has made he concludes that it seems that the important, if not the specific part, in the etiology of the classical paraplegia is played by a streptococcus which multiplies in the sub-arachnoid and cephalo-rachidian fluid, thus explaining the manifestations of paraplegia. As to the symptoms of hæmoglobinæmia, he reserves his opinion.

The work of Prof. Lignières, which I present to the readers of the REVIEW elsewhere, is very interesting—containing the discovery he has made of the microbe, streptococcus in the sub-arachnoid fluid, its culture and his experiments with it, not only with mice, but with horses, in which he was successful in reproducing the symptoms of paraplegia with all its manifestations. The treatment recommended by Prof. Lignières is simple: Large general bleeding, sulfonal in 30 or 40 gramme doses, and subcutaneous injections of anti-strangle serum. As in tetanus, all forms of irritants must be avoided.

For those who know Prof. Lignières it is certain that he will not stop at this point, and that at an early date he will give the profession new facts to confirm those which he has just advanced.

A. L.

PROFESSIONAL PHILANTHROPY.

It is an acknowledged fact that there exists among members of the liberal professions, in every part of the world, a feeling of community and of support, which dominates all others; and when injustice of any kind strikes one individual member, this is soon followed by a general protestation by the entire profession, regardless of any other sentiments. The veterinary profession, humble as it generally is, does not differ from the others—and it may be a question, if the professional feeling is not more developed among veterinarians even than in others. Let one of its members be ill or unjustly abused, and one and all are ready to protest and do protest against the wrong

done, not because it is done against one individual, but to the profession to which he belongs. Proofs of this are not wanting, and to take one of more recent date, the reader has only to remember the protests which found their way into the veterinary journals on the late shameful treatment of Dr. Huidekoper, because he was a *Veterinarian*.

But, outside of this professional sentiment, there is one, among others of a more selfish nature, which, it seems to us, has escaped the attention of the philanthropists among us. It is one which has manifested itself in the medical profession of the United States and also among veterinarians in France; of other parts of Europe we are unable to speak.

This feeling is that which is expressed by the support and assistance that members of a profession at large can render to each other, to each individual and his family; and which, as we said before, is so well manifested in the United States among physicians by the now old "Physicians' Mutual Benefit Association," and in France by the "Association Centrale des Vétérinaires"; associations which in given circumstances permit of pecuniary assistance to the family of a disabled or dead member.

We all know that, with the numerous difficulties that one meets in entering the veterinary profession, with all the knowledge demanded of him, with all the hardships that he meets in the performance of his duties, that the veterinarian, after many years of laborious life, seldom retires from business with more than the strict means necessary for comfortable existence. Wealth is never reached by veterinary practice alone. But let him, as it is unfortunately and not uncommonly the case, become disabled in early life and be unable to practice and provide for his family, what will become of him and of them? Let him die suddenly. What will become of his wife, of his children?

The societies which we have named have been organized to meet such emergencies. In the American association a certain sum is given to the family of each member at his death. After many years of existence, to-day that organization is able to

give \$1000 to the widow of every dead member. In the French society donations are given now and then to the disabled brother practitioner or even to his family, as the case may be.

The good that these associations accomplish is too plain for any comment.

To give in this article the plan of organization, the workings of such an institution, would be premature. But, if there are, as we understand it, more than 3000 veterinarians in North America, let but one-half, one-third of them be willing to form such an association; yes, let but 100 of them do it, and there is no doubt in our mind that it will take but a short time to have the number largely increased and their organization permit the realization of the object we have in view.

To organize such a society may not be an easy task; many may be the objections; critics will be plenty. Still, we present the suggestion to our American friends. We ask their opinions, their remarks, their objections. The REVIEW will gladly receive them, gladly discuss them. We trust we can convince them that American veterinarians will not refuse their coöperation when a question of human kindness is at stake. A. L.

THE AUTO-TRUCK SENSATION.

The sensational announcement in the early part of January of the formation of a gigantic New York syndicate, headed by famous local politicians, for the purpose of launching the auto-truck on a large scale, put veterinarians into feverish excitement as to the effect such a proceeding would exert upon their vocation. The statement was loudly heralded that a company, headed by Richard Croker, had been capitalized for \$7,000,000—divided between an organization to control the compressed air patents and a company to operate the trucks. It was stated that an order had been placed with a Worcester, Mass., concern to build 250 of these trucks, each to be capable of traveling twenty-five miles with one charge of compressed air, going at the speed of eight miles per hour and capable of carrying ten tons. Further, it was said that there would be placed in the

treats of New York 3000 of such trucks, and that they were already buying up truckmen, horses, trucks and business, and that as fast as the new inventions were manufactured the old-style methods would be replaced, and that there was no doubt that the doom of the horse was sealed. They have even put in bids for certain large contracts—such as hauling goods from the transatlantic steamships to the bonded warehouses, and have offered to compete with fire-engines drawn by horses as to velocity and facility in handling the apparatus. In fact, the claims are so sweeping as to render one skeptical as to their sincerity, and the enthusiastic advocacy of the proposition by the daily newspapers brings to one's mind the possibility of their being the recipients of some of the stock of the stupendous scheme—while the thought that the amount of bluster accompanying the launching of the enterprise may be for the purpose of disposing of the stock, and when that has been accomplished, the *experiments* with the auto-truck will begin in earnest. When a company has a real good thing, they usually maintain silence and saw wood, while when the dollars of the public are to be sought, it is usually done in the manner that is now being pursued.

It appears to be a foregone conclusion that the new motive power is destined to exert an influence as a factor in the propulsion of business vehicles, but it is not sufficiently perfected as yet to merit the consideration now being bestowed upon it, and as a substitute for the horse it has no more claim to adulation than a china egg has to supersede the real "hen fruit."

AS THE REVIEW GOES TO PRESS the glad tidings come that the amendment to section 2 of the Army bill, giving to the veterinary surgeon the rank and pay of second lieutenant has passed the House in Committee of the Whole. While it has yet to face the House for adoption as a whole, and to run the gauntlet of the Senate, we feel that the profession has gained a material point, and there is every prospect that their long struggle is finally to be crowned with success.

ORIGINAL ARTICLES.

CONTRIBUTION TO THE STUDY OF PARAPLEGIA IN THE HORSE. *

BY PROF. LIGNIÈRES, FRANCE. Translated by A. LIAUTARD, M. D., V. M.

As you will observe, the study that I have the honor to relate to you is not recent. Begun in January, 1895, it was continued during the winters of 1896 and 1897.

I earnestly wished to finish these researches in the silence of the laboratory before making the results known; but new obligations have come, which may prevent me for a long time continuing my investigations, and, besides, the results so far obtained seem to me already sufficiently interesting to be made public.

Paraplegia of the horse has received many and various names, and especially since the very interesting paper of Mr. Lucet there is a tendency to call it hæmoglobinaemia or hæmoglobinuria. I see no advantage in this change. First of all, the most constant and most striking symptom is the impossibility for the animals to use their hind quarters. There is truly paraplegia. On the other hand, there exists a group of affections in cattle, sheep, horses and even man, related to the hæmatozoa, in which hæmoglobinaemia is present; but paraplegia has no relation to those diseases, and requires a name which will not give rise to any confusion.

Having nothing to add to our classical knowledge of the disease, I will not insist, remaining satisfied by saying that I have specially in view the classical paraplegia, viz.: that which occurs suddenly in winter, in vigorous animals, returned to work after a certain rest and in which hæmoglobinaemia has or has not been found. I will not lose time in recalling all the theories advanced to explain the etiology of the disease; for this I refer the inquirer to the excellent critical study of Prof. Cadéac published in the *Journal de Lyon* in August, 1897.

* A paper read before the Société Centrale de Medec. Vet.

From my first researches upon the etiology of paraplegia, I have observed that it was indispensable to have recourse to very fresh cadavers and from those of animals whose death occurred rapidly. Indeed, most ordinarily, if the patient has remained lying down two or three days, he becomes feverish and his organism is filled with various intestinal microbes which modify the results.

In all my attempts, I had specially for objective of investigations the nervous centres of the kidneys, as long as the observed symptoms indicated an alteration of those organs.

I had already made post-mortems and studied on several animals without result, when on January 4, 1895, one of my friends, Mr. S., gave me the opportunity to follow in his stable a very serious case of paraplegia. On account of bad weather, the animal, a superb Percheron, extremely vigorous, had been kept two days without working. Put in harness January 3, at 10 P. M., towards one o'clock in the morning he suddenly dropped down and, notwithstanding powerful efforts, was unable to move his hind quarters. I had him brought to his stable, where he was submitted to the classical treatment. All kinds of interference seemed useless, the animal kept struggling, was in a pitiful condition, his body covered with perspiration, the respiration and pulsation very accelerated, the mucous membranes congested, the urine very red, and the temperature evidently elevated, $39^{\circ}9$ C.

The same day, at 3 P. M., he died, and I immediately began a minute post-mortem, which lasted not less than five hours. I will not make this communication uselessly long, and will pass upon the lesions, which, however, were classical. I took specimens of the blood, pieces of the spleen, liver, kidneys, bony marrow, rachidian bulb, spinal cord on the level with the loins, subarachnoid and cephalo-rachidian fluids in various parts of the spine and as far as the bulb.

Only one of those, the subarachnoid liquid collected on the level with the bulb, gave me a very rich culture, formed by a splendid streptococcus, taking the Gram well.

While collecting this fluid, I had found in it very fine granulations, which through the microscope I made out to be little masses of streptococci. The quantity of these microbial granulations was such that I was actuated with the idea of their possible specificity. I then studied this streptococcus to the point of view of its properties of culture and its pathogenous action. I was at that time beginning the comparative study of the streptococci, not only of this one, but also of those of anasarca, and it was only towards the end of 1895, and specially at the beginning of 1896, that it became possible to me to make known the first results of my observations.

The streptococcus found in the paraplegic horse is of the strangles kind, ærobic and anærobic; it takes the Gram well. In bouillons, it grows specially in tufts, which settle in deposit at the bottom of the tube and give to the media an acid reaction. It coagulates milk; does not grow on potatoes; on peptoned gelose, small round colonies of greyish white color are developed. Gelatine is not a very favorite media, microbes multiply without liquefying it; they form a very delicate whitish dotting. Serum gives colonies, flatter and somewhat wider than on gelose. The microbe develops quite well in bouillon of serum.

INOCULATIONS.

I might here repeat all that is already known of the streptococcus of Schütz, but I go on rapidly to insist a little upon two peculiarities relating to the inoculation on mice and on horses.

Carnivora, swine, ruminants and birds resist experimental infection. The guinea-pig and rabbit resist well subcutaneous inoculations, but the former succumb to intra-peritoneal and the latter to intravenous injection. On the contrary, mice are very sensitive and die, even with subcutaneous injection of a small dose (two or three drops of culture).

Peritoneal inoculation is peculiarly fatal, and, as an interesting fact, produces a highly acute parenchymatous nephritis with strongly bloody urine. As very few microbes are found in

the tissues of the kidneys, it looks as if one had to deal with toxæmia.

After intra-peritoneal inoculation, the animal may die in eight or ten hours. From the sixth hour, the mouse lies on its belly, the hind legs apart, and seems to move the hind quarters with difficulty. These inoculated mice are sensitive to excitations; the slightest draft of air, as that made with a rapid shaking of the blade of a knife, is sufficient to promote the evacuation of the bloody urine and sometimes is sufficient to kill it.

Inoculation in the horse is more interesting; here is the *résumé* of one stallion, quite powerful, 12 years old, belonging to the Compagnie Generale des Omnibus. Temperatures taken before inoculation :

	Nov. 30	Dec. 1	Dec. 2	Dec. 3	Dec. 4	Dec. 5	Dec. 6	Dec. 7	Dec. 8	Dec. 9	Dec. 10	Dec. 11	Dec. 12
Morning	37°	37°1	37°5	37°8	37°2	36°9	37	37°1	37°4	37°3	37°3	37°1	36°9
Evening	37°	37°5	37°5	37°2	37°	37°	37°1	37°2	37°4	37°5	37°7	37°7	36°9

This animal is in good health and has excellent appetite.

December 12, 1896, at 4.30 P.M., he received in the vein an injection of 300 c.c. of a culture of streptococci obtained July 13, 1896, in the subarachnoid fluid of a paraplegic horse.

Temperature after the injection, 37°8; 3 P.M., 36°8; 9.30 P.M., 37°5; 11 P.M., 39°0. Immediately after the injection, he had light colic which lasted one hour, after which he went eating as usual.

Dec. 13.—Temperature 1 A.M., 38°8; 4 A.M., 39°4; 6 A.M., 39°3; 8 A.M., 38°2; 10 A.M., 38°6; 12 M., 38°2; 2 P.M., 38°6; 4 P.M., 38°6; 6 P.M., 38°6; 8 P.M., 39°5; 10 P.M., 39°8; 12 P.M., 39°5. Appetite keeps good; has rested, lying down part of the night.

Dec. 14.—Temperature 2 A.M., 39°3; 4 A.M., 39°3; 6 A.M., 39°8; 8 A.M., 39°8; 10 A.M., 40°2; 12 M., 40°3; 2 P.M., 40°; 4 P.M., 40°1; 6 P.M., 40°4; 8 P.M., 40°2; 10 P.M., 40°4; 12 P.M., 40°5. Has eaten poorly.

Dec. 15.—Temperature 2 A.M., 40°7; 4 A.M., 40°2; 6 A.M., 40°4; 8 A.M., 40°2; 12 M., 40°6; 2 P.M., 40°7; 4 P.M., 40°6; 6 P.M., 40°6; 8 P.M., 40°4; 10 P.M., 40°6; 12 P.M., 40°3. About same condition, small swelling of the genital organs.

Dec. 16.—Temperature 2 A.M., 40°4; 4 A.M., 40°1; 6 A.M., 40°3; 8 A.M., 40°4; 10 A.M., 40°1; 12 M., 40°2; 2 P.M., 40°5; 4 P.M., 40°2; 6 P.

M., 40° ; 8 P.M., $39^{\circ}8$; 10 P.M., $39^{\circ}6$; 12 P.M., 39° . Mucous membranes a little dull, appetite most gone. Laid down at 12 o'clock and got up without difficulty. Pulse 88, respiration 24.

Dec. 17.—Temperature 2 A.M., $39^{\circ}8$; 4 A.M., $39^{\circ}9$; 6 A.M., $40^{\circ}1$; 8 A.M., $40^{\circ}5$; 10 A.M., 40° ; 2 P.M., 40° ; 4 P.M., $39^{\circ}8$; 6 P.M., $39^{\circ}9$; 8 P.M., 39° ; 10 P.M., $39^{\circ}2$; 12 P.M., $39^{\circ}5$. Laid down at 11 A.M., did not get up all day, ate little. From time to time raised his head and looked towards his loins. Pulse 84, respiration 26.

Dec. 18.—Temperature 2 A.M., $39^{\circ}1$; 4 A.M., 39° ; 6 A.M., $38^{\circ}8$; 8 A.M., $38^{\circ}8$; 10 A.M., 39° ; 12 M., $38^{\circ}9$; 2 P.M., $38^{\circ}9$. All attempts made to raise him are useless. He dies at 3.30, paraplegic.

Post-Mortem.—Intestines seem normal, as well as liver, spleen, lungs, muscles and nervous substance of the cord. Bladder is filled with urine, not bloody but albuminous. Kidneys very soft. The inoculated streptococcus is found only in the kidneys and the subarachnoid fluid of the spinal cord.

Another horse, given to me by Prof. Nocard, was inoculated through the jugular vein with 150 c.c. of the culture of a streptococcus obtained from another paraplegic patient. He seemed to be ailing for several days, but after that everything went normally, when three weeks after the animal dropped suddenly at five o'clock in the afternoon, while one hour before he appeared perfectly well. All attempts to raise him failed; he presented all the symptoms of a characteristic paraplegia.

He died the next day without having bloody urine; this, however, was albuminous. In this case, also, the streptococcus was found in the subarachnoid and the cephalo-rachidian fluids.

Evidently these experiments of inoculation are most interesting; on one side in the mice we have the frequent presence of bloody urine and on the other the paraplegic symptoms ending by death in horses.

It is true, those last are wanting the symptom of bloody urine, but this does not always exist in the natural disease, and perhaps it requires some special conditions to make its appearance.

If the bloody urine of mice can be promoted by the streptococcus of strangles, and also, though with more difficulty, by the streptococcus pyogenes, experience teaches that the former

has not the same influence upon nervous centres as that of paraplegic horses. This last seems to have the rather special property of acting upon the spinal cord.

During my researches, I have made eleven post-mortems of paraplegic horses, received from all over. Out of these, I have found the streptococcus seven times in the subarachnoid fluid and twice or three times in the kidneys. In the other cases the tissues were already invaded with several microbial species.

So as to avoid possible errors, I must say, that quite frequently a large streptococcus, not pathogenous, is found in the subarachnoid fluid; this takes the Gram, is formed of plates flattened one against the other and growing vigorously in all medias of cultures, which differentiate it from the preceding.

The results of these researches would be of greater value if the experiments of inoculation had been more frequent; it is principally with those that I ought to have completed my studies. However, I believe that other inquirers may be assisted by knowing the means of cultures, the methods to follow to find the streptococcus and also the characters which may help to differentiate the streptococci of the pyogenes from those of the strangles type.

As media of culture I prefer the following: Asparagus bouillon, 100 parts, peptoned gelatine, 3,—to which may be added serum, 20 to 30. With this bouillon I have sometimes obtained magnificent cultures in eight or nine hours; the virulency is well conserved in it.

To isolate the streptococcus, one may use with success intramuscular injections to the rabbit. The microbe is specially found in the subarachnoid fluid.

*Characters by which the streptococci of the pyogenes type can be differentiated from those of strangles.**

Streptococcus Pyogenes.

Streptococcus of Strangles.

The injection under the skin of the ear produces quite frequently an enormous erysipelatous swelling.

The same injection is most ordinarily unable to produce a typical erysipelas.

* These are not positive, they belong specially to streptococci obtained recently from the organism a great deal more than to those of cultures more or less modified by successive passages.

In mice, intraperitoneal inoculation seldom gives bloody urine.

Subcutaneous inoculation on white mice is frequently fatal ; at the point of inoculation the pus is not very abundant and the spleen is slightly hypertrophied.

The rabbit is generally sensitive to subcutaneous inoculation ; after death the spleen is markedly hypertrophied.

Colts support subcutaneous injection well.

Influenced by the antistreptococci serum originary from the streptococcus pyogenes.

In mice, the same inoculation produces more easily bloody urine.

The same inoculation on the same animal is much more serious than with the streptococcus pyogenes ; at the point of inoculation, there is a great deal of pus and the *spleen is enormous*.

Rabbit is little sensitive to subcutaneous inoculation and when it dies, the spleen is about normal.

Colts react well—subcutaneous inoculations, specially to the chest, produce an enormous phlegmon which ends in an abscess very rich in homogeneous white pus, creamy, where long rods taking the Gram are found in great quantity.

Not influenced by the same.

CONCLUSIONS.

Evidently paraplegia of the horse, as that of man, may have numerous causes. For instance, it is certain that typhoid fever of solipeds is sometimes followed by paralysis. I have, in fact, observed an epizootic outbreak, which had no other cause. This complication is, however, easily understood, as long as the organism of typical patients is almost always invaded by various streptococci.

But outside of epizootic paraplegia, my researches seem to prove the important, if not specific, part played in the etiology of the classical disease by the streptococci which pullulate in the subarachnoid and the cephalo-rachidian fluids, thus explaining well the paraplegic phenomena. As for hæmoglobinæmia, its pathogeny is a little more difficult to understand, and for the present I do not wish to advance any supposition.

This new idea, which, however, only provise the microbial theory, has nothing to upset the facts obtained by observation. It is thus that plethora, return to work after a certain rest, and specially cold, remain always predisposing causes of the first order.

The streptococcus may exist in the organism without awak-

ening the slightest suspicion, without causing any apparent trouble; I have already mentioned the fact of a horse which remained in apparent perfect health after having received an intravenous injection of streptococcus, and from the kidney of which, at the time he was killed, a handsome culture of streptococci was obtained.

I have succeeded in preserving subarachnoid fluid full of streptococci from January 4, 1895, to July, 1896 (say a year and a half), and found by intraperitoneal injection of the liquid, to young mice, that the vitality and virulency of the microbes remain.

One may easily conceive the presence of some streptococci in the nervous centres without necessarily giving rise to trouble; but let one of the predisposing causes occur at a given time, then the microbe, which was about being destroyed in time, pullulates, throws out its toxins, and then appear the lesions and symptoms of the disease.

These predisposing causes are not always necessary; indeed, it has been observed, though not commonly, that horses not plethoric were affected, others drop in the stable, and again typical cases have occurred in summer. In my series there was a horse which was affected in June, and in which I found streptococci in the subarachnoid fluid.

At the beginning of this communication, I said that I would not stop to consider the theories admitted to this day; I must, however, mention the supposition of Prof. Cadéac tending to connect paraplegia with the existence of streptococci in the blood of the sick animals. Mr. Cadéac does not explain very well his opinion, but it is easy to notice that he is guided by observations, especially when he says: "We have, however, seen several times in a stable where contagious pneumonia existed, animals, which did not go out present attacks of pseudo-paraplegia and of hæmoglobinuria."

If, now, my opinion upon the treatment of classic paraplegia is desired, I would say: Free bleeding as early as possible; bolus of sulfonal, 30 or 40 grammes, and subcutaneous injection

of the anti-strangle serum as soon as it is put on the market. Irritants must be avoided, and, as in cases of tetanus, any cause of excitement as well.

[WRITTEN SPECIALLY FOR THE AMERICAN VETERINARY REVIEW.]

DECAY OF THE DOG'S TEETH.

BY FRANK H. MILLER, D. V. S., NEW YORK CITY.

In selecting this subject to present before REVIEW readers I do so feeling my personal incapacity to treat the matter with that thoroughness which its importance would warrant, but trust that my remarks may cause other veterinarians of perhaps riper years and greater experiences and opportunities of clinical observation to come charitably forward and correct me where I have erred and support me where weak, that if possible veterinary science may include a more perfect understanding as to why dumb animals are so subject to dental defect and loss.

As heretofore, when you have kindly indulged me by allowing me access to the columns of your valuable journal, I have not selected some rare pathological condition but very infrequently coming under the observation of the general veterinarian, but as then I select with pleasure one of those conditions which is constantly presenting itself for treatment, a condition indeed which from its very frequency and insidiousness, is no doubt as imperfectly studied and understood as any to which animals are subject.

It is true that in the two words "tartar" and "caries" the veterinarian has a vocabulary which, if judiciously manipulated, will in a sense satisfy the client, but how unsatisfactory they seem to be, when we for ourselves come to consider those changes in anything like a scientific manner. Those terms as applied in the study of pathological changes, as seen in other parts of the body, appear to me to lend us but a very imperfect light as to the condition or conditions under which the ultimate loss of the dental structure takes place. For the purpose of this paper I will almost entirely confine myself to that condition

known in the human family as *pyrrhœa alveolaris*, not only that a more perfect comprehension of its etiology may be gained alone, but that perchance our energies may be quickened to the end that an improved prophylaxy may be observed, which will in time at least, give a much greater immunity from an induced condition of disease which in our patients has come to be looked upon as practically incurable.

My personal experience has long since taught me to believe that dental caries as such is a primary and specific disease due to a specific organism living upon, and at the expense of, the dental tissue, is extremely rare in the lower animals as compared with ourselves. I am firmly convinced that in dogs at least quite ninety per cent. of the teeth which become diseased, do so from causes having their primary origin in inanition, rather than from the structures suffering from the direct attack of any specific disease, much less that of the so-called caries.

I, with the majority of veterinarians, have been called upon to extract countless numbers of teeth, from canine patients, but in extremely few instances have I been able to conscientiously affirm that the general appearance of the lesions upon the teeth extracted, corresponded in any sense with those presenting themselves upon the human tooth extracted under diagnoses of caries.

In practically all the teeth we extract from the animals, and especially those of the dog, we invariably find the disease confined principally, or wholly, to that part of the dental tissue which is normally contained within the alveola of the maxilla, whereas that portion known as the crown, and covered with enamel, is either entirely free of visible symptoms of disease, or is being but slowly invaded from the direction of the neck of the tooth.

That the incrustations of earthy salts, commonly known as "tartar," which we are so frequently called upon to remove from the teeth of animals, and notably those of the dog, have a real importance in the study of disease and their prevention, I can in no wise doubt, but I am quite as free to admit its relation

to disease is a much misunderstood matter. For myself I have come to regard its presence, not in itself as in all cases endangering the tooth structure, but always as an invaluable index of the general health of the animal in question.

We know definitely that this deposit depends not for its existence upon the character of food or fluids taken by the patient, but rather upon conditions, but poorly understood at the present time, whereby the earthy salts are precipitated from their natural solutions into concretions having a matrix of mucine-yielding organic materials.

When dogs are presented to me for examination showing these deposits, far from considering them as constituting a disease in themselves I study their location and rapidity of growth as indications of the grave state of the digestive tract which has, it will be found in the vast preponderance of such cases, come about as a result of error in the mode of feeding, exercising, etc.

It was formerly maintained, even by those giving their entire attention to such research, that perfect development and support of the teeth in men, and animals alike, depended upon the ingestion of food containing abundance of lime salts, notably those of the phosphates, and that in this manner alone, could a good sound, normal denture be obtained. Careful observation, has, however, quite changed our ideas upon the subject, and we no longer can scientifically maintain that sound teeth come either to ourselves or our animal friends by reason of this or that certain kind of food, but that the most different kinds of diet are capable of yielding the essentials of a perfect nutrition for the building up and maintenance of the teeth, provided the process of digestion and assimilation are in a state of perfect health, and that the laws of heredity have not imparted weakness to the formative tooth tissues, which diminishes its vital power to take to itself the proper nourishment which really obtains in the nutritive fluids of the body.

The Esquimaux and his dog can, and do, develop upon their monotonous diet of blubber and raw-hide, teeth as sound, even

more sound, than we of temperate climes with the greatest possible variety of foods, including the phosphate-yielding cereals. Few animals or men, indeed, exist who have enough to eat of almost any kind of food, but gain the elements of tooth requirements, provided, however, they live lives calculated to keep the entire organism in that state of health which is necessary for the maintenance of any one particular tissue of slow recuperative power as is the case notably of the teeth.

While convinced that decay of the teeth of dogs can at times much impair their general health and comfort and not infrequently aid in precipitating serious and even fatal gastro-enteric complications of decidedly mycotic nature, I feel that such culminations are at most in the greater number of instances aggravation of pre-existing derangement, and that the teeth suffer much more as a direct result of disorders of the digestive tract than *vice versa*.

Having practiced both in the country and city I have no hesitancy in saying that patient for patient at all ages, the percentage of dental disintegration in city dogs will more than double those in rural districts. Why is this? It is because those animals which are most highly prized as companions by those living in cities, are from the very nature of their "blue blood" or breeding, originally endowed with formative teeth possessing lessened possibilities of healthy growth and development, and being developed, of lessened resistance to the inroads of disease than those bred with less design as to the attainment of type, etc., as is notably the case in rural districts, or would it be wiser to turn to the "high tension" diet, so to speak, which prevails among city dogs as compared with their country cousins, as a plausible reason? While these considerations both seem perfectly plausible, it would be manifestly incorrect to attribute to either of them alone, the cause of these manifestations, or even attribute to them conjointly the greatest cause for dental decay, inasmuch as it would make the basis of our observation the *Luxus* dog, and that would seriously modify the deduction by passing over the state of affairs which prevails in this respect

among the dogs owned by the not necessarily poor, but more humble citizens of the cities, which dogs, after all, either registered or unregistered, usually far outnumber those of the rich. These dogs in their manner of selection and breeding, feeding and housing, closely resemble those reared in the country. They are bred in the most careless manner without much idea of attaining, or, retaining type, or even breed. They have upon the entire a sufficient diet of coarse but nutritious food, since the laborer the world over is generally speaking a liberal man toward animals, yet the preponderance of dental defect among them is far, far in excess of those animals retained in the country, and seem to suffer in a manner almost identical to their more aristocratic city brothers.

While most thoroughly convinced of the intimate relation of both artificial selection, and high living in dogs as in men as to their welfare and longevity, I am quite as positive that bodily inactivity induced or compelled by abnormal environments, is the key which works the combination of hereditary predisposition and dietary error, and allows the entrance of disease of the teeth. Nature never intended that dogs should use tooth-brushes, but so ordered the formation of their denture and tongue, that the very act of taking and crushing his food, would effectually cleanse his teeth. She also originally intended them for great bodily activity, as evidenced by their physical conformation, and the rapidity with which they can carry themselves when desired, and where we observe dogs living under conditions allowing or demanding such bodily activity, there we usually, indeed almost constantly, see perfect teeth. They may be worn away by hard materials, but they are almost universally solid and healthy, so long as the food is ample to replace tissue waste, and part of it, at least, has that hardness which exercises the individual teeth within their alveolus, as well as the muscles of mastication. I am thoroughly of the opinion that the teeth at all times, and more especially at the time of development, stand in constant need of such exercise as comes from the effort to overcome resistance. An understanding of the law by which disuse begets

atrophic change in all parts of the body is of great importance, first in developing good teeth and retaining them.

The matter of general and local exercise is so intimately associated with the health, as to be, it appears to me, by its regulation in connection with feeding our only hope of ameliorating the condition of the teeth which prevails among the dogs of our cities to-day.

It is common in the examination of city-owned dogs, even comparatively young ones, to find their teeth so completely covered with concretions as to be almost entirely hidden except at their extreme apices. Such animals, it will be usually, found have been in the habit of taking not only a great variety of food, but have taken it far in excess of their requirements, and usually in a soft pultaceous mass. There may not be the least evidence of disease of the teeth at the time of examination, yet there will be a foetid sour odor from the breath, even though scant evidences of decomposing food may be present. The tongue is white and coated in the centre with red margin. The secretions are abundant and tenacious. There is a lack of spirit. Bowels deranged and irregular, disinclination to take exercise and he tires easily. The gums present a variable appearance, but are usually dark purplish red near the margin, and bleed easily upon the slightest irritation.

Such, in short, are the patients which only too frequently pass over our tables without any particular and careful diagnosis being made, and oftentimes from very carelessness in the removal of the tartar, wounds are made, which give the first direct inroad for active disease to enter the alveolus and attack its contents, which almost invariably leads to irreparable loss.

The conditions under which salts are precipitated from their natural solutions within the body are, as I have already stated, but imperfectly understood, but the close relation which mucine holds to calculi, whether salivary, biliary or urinary, goes far to indicate that their foundation is laid in catarrhal disturbances of mucous-membranes, and certainly in such cases as I have cited there is every indication of gastro-intestinal catarrh.

It is evident that the concretions should be carefully removed, but it is of equally vital importance that the digestive irregularities should be corrected, if possible, otherwise they will immediately reappear.

My prognosis in such cases, as to the retention of the teeth, depends almost entirely upon the opinion I can form as to the possibility or probability of a resumption of health being induced by corrected diet, exercise and judicious medical treatment, and that there be not from the history every reason to believe that the alveolar tissues possess the tendency to atrophic change, as will be the case if the animal has been fed from perhaps its youth entirely upon soft foods.

The treatment is simply to cleanse the teeth most thoroughly with dull scraping instruments, as used by human dentists, taking care to remove the deposit in its entirety, and especially where it touches or penetrates below the gingival line. The process is tedious and requires great patience and dexterity, but can be accomplished satisfactorily in almost all dogs if correctly undertaken. Make a complete change in the diet, and if possible send them into the country to be boarded out, where reforms can be more easily practiced, and tone the digestion by remedies, as elixir pepsin, bismuth and pancreatin, in suitable doses, and secure an abundance of exercise in the open air. Cause the gums to be thoroughly swabbed three times weekly with an astringent solution, made in the strength of one teaspoonful of powdered alum to the pint of water. By these methods I have had very good results in arresting the conditions which lead up to destructive pyorrhœa alveolaris, or that class of aggravated trouble which, as I have already estimated, is responsible for perhaps ninety per cent. of the teeth lost by dogs.

If tartar be allowed to remain and continue its accumulation about the teeth, it will increase its volume upward and outward from the neck, but there will also be a constant tendency to press its formation down more and more firmly upon and into the alveolus, and in time there is certain to come dissolution of the soft structure of the gingivæ and dental ligament, as that

portion of the peri-dental membrane is called which lies near and surrounds the neck of the tooth and fixes it to the alveolar rim. The same conditions which were instrumental in causing the precipitation of tartar having evidently much lowered the vitality and resisting powers of the alveolar tissues, pathogenic and other micro-organisms with which the mouth normally is infected, even in health, find here suitable conditions for their growth, and as a result the alveola soon becomes bathed in pus and the structures therein, which not only supported the tooth but bear direct relation to the nourishment of certain parts of the same, fade away and leave in their stead only detritus, within which remains a loose and denuded tooth, held *in situ* perhaps by the extreme end of its root or roots, and very imperfectly nourished by the blood which may still pass into the foramina of the same. Such teeth as are lost through this process of decay fortunately do not give the animal that amount of anguish or odontalgia as comes to ourselves by reason of caries penetrating through the crown and exposing the pulp in all its comparative health and sensibility to external influences.

The whole history and close observation of such patients would indicate that the changes are truly atrophic in their nature, and that the gradually diminishing vitality of the peri-dental membranes in all these cases brings about early changes in the nerves of sensation whereby the disease progresses to its end, or the loss of the tooth, in a more or less painless manner as compared with the changes incidental to loss by true caries.

In treatment of such cases as have several teeth already deeply involved, I think extraction the proper course to follow, since usually the value of the patient will scarcely warrant the outlay of the long continued treatment, which will be at best not particularly certain of success in the end, and especially if the animal be aged. When it is imperative that several teeth be removed, I invariably use sulphuric ether anæsthesia, regardless of age or condition, and consider it absolutely safe if pushed rapidly to completion and withdrawn immediately when that condition is produced, which will, generally speaking, suffice for

all the extractions needed. If but one or two teeth are to be removed I cleanse the surroundings in the alveoli with absorbent cotton and treat with 6 per cent. cocaine solution for a few minutes, and usually have no difficulty in removing them with a minimum of discomfort to the animal.

As treatment, I prescribe either a 10 per cent. solution of permanganate of potash in water, or borolyptol diluted five or six fold in water. The latter is a semi-official preparation, to be had at all druggists, depending for its antiseptic qualities upon a judicious combination of borax, glycerine and formaldehyde. While perhaps less powerful than the permanganate solution as a disinfectant, it has the great advantage of producing little effect if swallowed in ordinary amounts, and giving no stains, two most important advantages, inasmuch as a great many of the cases we treat are small delicate animals amid luxurious surroundings.

I usually request the thorough cleansing of the gums with these solutions three times daily, and until they are perfectly healed.

When from the age and value of the animal, the small extent of pus formation, and favorable state of health, etc., I conclude to treat such cases I generally give the animals a comparatively heavy hypodermic injection of sulphate morphine and when its soporific effect is obtained, begin by flushing the alveola with tepid water to remove débris, next applying the cocaine solution freely and when the parts are thoroughly reduced in sensibility, proceed to carefully remove all concretions from the tooth, with as little disturbance as is possible to its attachment at the bottom of the alveolus, gently scraping the alveolus walls, and again flushing it most thoroughly with lukewarm water that all calcareous, and other matter, may be removed and follow up with thorough sterilizing by means of a 5 per cent. solution of hydrogen peroxide. To be in the least effective the removal of foreign matter, as incrustations, etc., must be most thorough. Thus have I had in sundry cases by this line of treatment and by daily cleansing, and close atten-

tion to regulate and tone the digestion by every means possible been rewarded with the retention of teeth which would otherwise have been lost.

That this condition of pyorrhœa alveolaris is contagious I have no good reasons to doubt, but the difficulty with which it can be artificially induced by inoculating healthy alveoli in healthy dogs, and the ease with which it can be produced in reduced and unhealthy subjects is pretty strong proof of the assertion I make that it primarily depends much upon conditions inducing inanition of the alveolus and its contents, with the overfeeding of any or all kinds of food of a constantly soft state of preparation, and want of general exercise as the two greatest items in its production.

DIGITALIS.

BY PROF. H. D. HANSON, D. V. S., NEW YORK CITY.

A Paper read before the Veterinary Medical Association of New York County, Jan. 4, 1899.

We learn by repetition. With this end in view, I have selected "Digitalis" as my subject, in order to refresh your memories upon the actions and indications for use of the drug, and also to emphasize certain misuses.

Before speaking of digitalis, it may be well to call your attention to the classification of remedies in order to know under which head this drug belongs.

Remedies may be classified as medicinal, non-medicinal or disinfectant.

Medicines have to enter the circulation in a state of solution before their action is obtained; non-medicinal agents act locally without absorption into the blood. Disinfectants destroy or check agents producing disease.

Medicines are either functional medicines or organic medicines.

Functional medicines, also called symptom medicines, affect the function of an organ, but do not produce any alteration in structure that can be recognized after death. Examples are: belladonna, opium, digitalis, aconite, aloes, tannin, etc.

Organic or disease medicines act upon or so change the tissues of the body as to alter the system by their use, as iron, cod liver oil, phosphates, iodine, mercury, etc.

Functional medicines are given for certain symptoms, as pain, and their action is usually secured by one dose, while organic medicines are given for the disease itself, and have to be given for some time in order to obtain the desired effect.

Functional medicines include neurotics, eliminatives and astringents, while organic medicines include restoratives and alteratives.

Neurotics are classified under three heads : *First*, those called narcotics, which are both stimulants and sedatives, as alcohol, opium, belladonna, cannabis indica ; *second*, those which stimulate certain nerve functions, as digitalis, ammonia, strychnine, camphor, ergot, etc.; *third*, those acting as sedatives to certain nerve functions, as aconite, tartar emetic, cocaine, etc.

Neurotics are those medicines acting on the functions of the nervous system, and produce special symptoms. Any one drug of this class does not, and cannot, control all the functions of the nervous system, as these functions are too numerous and altogether different to be controlled by one neurotic. These medicines do not cure disease, but only relieve symptoms.

Digitalis, commonly called foxglove, is included under the second division of neurotics, namely, among those that stimulate only the nerve functions.

The leaves are the parts mostly used, and are obtained from the two-year-old plant, digitalis purpurea. The leaves have a bitter taste, are odorless in the recent state, but have a faint narcotic odor when dried.

Besides containing the active principles, of which digitalin is prominent, it contains a volatile oil, a fatty matter, coloring matter, albumen, starch, sugar, gum, and salts of potassium and calcium.

Experimentally upon animals, it has been observed that digitalis has its important action upon the circulatory apparatus, increasing the contractile power of the heart, and also the mus-

cular coats of the arteries through the nerve ganglions at the branches or divisions of the vaso-motor nerves going to the arteries.

There is a rise in arterial pressure by its action on the muscular fibres, by the increase of the heart's action, and by the vaso-motor spasm. The diastole is prolonged, the systolic power is increased, causing an increased amount of work under its influence. The peripheral ends of the inhibitory nerves, as well as the cardiac, are stimulated.

In repeated medicinal doses, the pauses between the pulse beats become longer, the individual beat slower, longer, fuller and stronger, showing that the heart is acting with more force than normal.

Digitalis is a cardiac stimulant, and is given to produce or increase the contractile power of the heart's muscle and help it to regain its normal size. Its action is principally on the ventricles and does not cause all of the fibres to act equally, and thus a streaked appearance is shown, the fibres affected becoming paler in color. Digitalis increases the systole of the heart at the expense of the diastole.

Large and toxic doses produce nausea and vomiting (in those animals that vomit), muscular weakness, cold sweat, irregular heart, diuresis, diarrhoea, labored breathing, extreme prostration, a rise in blood pressure, soon followed by a lowering of the same, stupor or delirium, convulsions and death.

The change of position causes a change in the pulse. If recumbent and quiet, the pulse may be slow and strong, while excitement or change of position causes the pulse to become rapid, irregular, small and feeble.

There is an over-balancing of the systolic irritation over the diastolic stimulation, causing the pulse to become dichrotic on account of the diastole being interrupted by the abortive systole.

The apex of the heart does not dilate, the aorta is empty because the ventricles do not dilate to receive the blood.

When given for a long time to the well or to the sick, death

is produced by increasing the contractions, causing the cavities to get smaller and smaller, and preventing the diastole or relaxation of the cavities.

Stoppage of the heart's action is due, not to paralysis, but to spasm which occurs during the systole.

In poisoning, tannic acid is the antidote, while aconite is the best antagonistic when large doses have been given. Opium is useful when digitalis has been used for a long time, as the former produces relaxation of the heart.

From the foregoing we find the indications for the use of digitalis made clear; when the heart is weak and only when the work required of that organ is less than the power to perform the same, digitalis is useful.

The drug can be given in dilated heart due to the relaxation of the muscles of that organ beyond their normal. In these cases the contractile power is lacking or weak, and the walls of the heart are unable to expel its contents owing to its relaxation. Digitalis here causes the necessary contraction and aids in emptying the cavities. The drug is contra-indicated in fatty heart and usually in cardiac hypertrophy, except possibly when associated with dilatation.

In dropsy when it is due to or associated with an interference in the action of the kidneys, digitalis is good as it is eliminated by the kidneys, and hence its diuretic qualities.

In pneumonia the danger we anticipate and encounter is a weak heart, and not as a rule a dilated heart, and in these cases digitalis is of no use. In this disease it may be indicated about the time of crisis, at which time the heart cannot drive the blood through the lungs, owing to the weakness of the walls of the right side of the heart, together with the obstruction in the lungs. Digitalis should not be given in this disease when the fever is high, as the heart is not dilated at this time (although it may be weak), but the organ relaxes when the fever suddenly falls, and hence in these cases digitalis does good. I speak of this because I think the use of digitalis has been, and is, abused in these cases, as it is used as a routine remedy.

A very important point which I wish to bring out, and which caused me to select digitalis as my subject, is one that I find overlooked, not only by the student, but also by practitioners, both of human and veterinary medicine, is that digitalis does not stimulate the heart in the same way that ammonia and alcohol do, but that, as I have already mentioned, digitalis increases the contractile power of the heart muscles, which power these muscles retain as long as the drug is given.

Another point is that the contractions in the arteries often remain after digitalis has been discontinued, and on this account, obstruction in these vessels remains and interferes with the action of the heart. It is claimed that this arterial tension can be overcome by combining nitroglycerine with digitalis. Nitroglycerine dilates the arteries, the heart beats quickly, the contractions are powerful, but it does not interfere with the action of digitalis. Strophanthus may also be added, as it increases the power of the heart's action, but does not raise the tension in the arteries by interfering with their calibre. This combination is beneficial to overcome a weak heart due to arterial obstruction.

The action of digitalis is often increased by cold and by such drugs as ergot, belladonna, etc.

The preparations of the drug are the powder, abstract, infusion, fluid extract, solid extract and the tincture.

Of the powder, the horse takes from 10 to 40 grains, the dog 1 to 3 grains, the cow 30 to 60 grains.

The fluid extract of digitalis is probably the best form to administer; the dose for the horse being 10 to 40 minims, the dog 1 to 3 minims, the cow $\frac{1}{2}$ to 1 drachm.

These doses are only approximate, as the so-called symptom medicines, of which digitalis is an example, have to be given, gradually increasing the dose till the physiological effect is produced. The dose varies in individual cases and as it is a very important point, the fact should not be overlooked in order to insure the proper results.

A very important feature in the administration of drugs is,

first, knowing what drug to prescribe; *secondly*, the kind of case in which this particular drug applies; *thirdly*, the quantity of the drug to be given in each case; *fourthly*, the quality of the drug, and, *fifthly*, the idiosyncracies which may exist.

To sum up the actions and uses of digitalis:

1. It is a peculiar heart stimulant (if the expression be allowed).
2. It is a useful diuretic in certain cases.
3. It increases the contractile power of the heart and arteries as well.
4. It does not stimulate the heart in the same way that alcohol and ammonia do.
5. Its action is aided, increased and perfected in certain cases by the addition of nitroglycerine and strophanthus, and in other cases by cold, ergot and belladonna.
6. It is a symptom medicine and should be pushed until its physiological effect is obtained.
7. It merely relieves certain symptoms, but does not cure disease.
8. It should not be given in pneumonia in a routine way, but only as the case requires, which usually is when the fever falls.
9. It is contra-indicated in fatty heart and generally in cardiac hypertrophy.
10. The fluid extract is probably the best preparation in use in veterinary practice.
11. The cinchona preparations, acetate of lead, sulphate and tincture of the chloride of iron are chemically incompatible.
12. In case of poisoning use tannic acid, opium, aconite or lobelia and in some cases stimulants according to the indications.

THE news comes from Chicago that a contract has just been signed by some dealers of that city to furnish 10,000 horses suitable for omnibus and coach work to English parties, shipments to begin at once.

[WRITTEN SPECIALLY FOR THE AMERICAN VETERINARY REVIEW.]

ADMINISTRATION OF ANAESTHETICS.

BY ROBERT ROBB, V. S., M. D., LITTLETON, IOWA.

Owing to surgery in the veterinary profession advancing so rapidly, it is now a question whether or not anæsthetics will be carried out successfully as in the medical profession. I cannot see why this neglected branch of veterinary medicine for operations has been so slow in the past; whether it has been due to the lack of experience, or to the valuation of animals or environments, I will not attempt to state, but merely allude to its value when carried out successfully, thereby advancing the principles of veterinary surgery to a higher degree. In the past there have been a great many operations neglected or put aside owing to the fact that it was impossible to carry out such a procedure, but at the present day there is such a demand for surgeons that one has to be on the alert, or else he will have his clients seeking new pastures to reap the benefits of more skilled hands.

To give an anæsthetic is one thing, to operate is another. No operator pretends to carry out both at the same time unless it is some minor operation. To give an anæsthetic requires experience, skill and knowledge, and no surgeon should operate unless he is familiar with the dangers and contraindications of anæsthesia. He should not allow any one of his assistants to administer an anæsthetic unless he is thoroughly competent to administer it safely and know exactly when to give and when to withdraw without the surgeon interfering during the operation. No anæsthetist can pay attention to his duty and watch an operation without endangering the life of the patient. He should from start to finish devote his entire attention to his patient, but at the same time know exactly how the operation is advancing, so as to meet any conditions that may arise during anæsthesia. Many an animal has passed to the other shore on account of the anæsthetist, his eyes being centred and his mind so occupied with what was being done with the knife, only to find out when too late that he was kneeling over a

cadaver. Such is often the case when one is trusted with the life of an animal.

Before an operation is begun the animal should be prepared for the anæsthetic by withdrawing the food and water for eight hours, keeping the patient quiet, and, if the circulation is weak, giving an hypodermic injection of strychninæ sulphatis, gr. $\frac{1}{4}$, and, if necessary, repeating this during the operation, should the pulse indicate it. The lungs and heart should be examined. Many an operation that would look serious if operated without an anæsthetic, often becomes very simple when sensibility is destroyed. Owing to veterinary patients not knowing or realizing exactly the condition of affairs when confronted with the knife, resists everything only to spoil and disgust an ideal operation. A great many operations could be carried out more successfully and more skill applied, with better results, if anæsthetics were used more generally.

I shall not attempt to dwell on the different modes of anæsthetizing, as I am fully aware that each operator has his own favorite appliance, even down to a small gunny sack. Chloroform being the general anæsthetic used on veterinary patients, especially among solipeds and bovines, I will dwell more on it, though; generally speaking, the principles are just about the same as for ether. When chloroform is first inhaled there will be noticed an acceleration of the pulse, increased flow of saliva, the latter decreasing as anæsthesia is increased. The phenomena of anæsthesia consists first in a disturbance of function, chiefly in the form of exaltation, secondly in paralysis of function. In the stage of excitation the pupils will be seen to oscillate between contraction and dilatation, and when fully anæsthetized will remain contracted during safe anæsthesia. Should the pupils dilate for any length of time, the drug should be withheld, as it is a good indication that it is being pushed too far.

It is claimed by some that ether is safer than chloroform among canines and felines, but it has been my experience that chloroform is as safe as ether if properly administered, and not crowded as some do in the first stage. The more the animal

resists, which is often the case with canines, the more chloroform some embryos use, thinking that by so doing they are doing their duty to control the excitation and struggling that follows at this stage. Should the animal absorb into the blood a large quantity of the drug during an inspiration, which is often the case, it may and does prove fatal by paralyzing the heart. I have seen canines pass away by careless anæsthetists, pushing the chloroform as if it was water, while, on the other hand, when fully anæsthetized, I have pushed it to a high degree, and carelessly at that, before death took place. I believe there is more danger arising from the anæsthetist than from the drug when administered to canines. I am fully aware that chloroform paralyzes the heart and ether stimulates it. During the entire operation the anæsthetist should keep one finger on the submaxillary artery; he should have his ear well trained, so as to know exactly every inspiration and expiration that is taking place. Should there be any stertorous breathing, the lower jaw should be brought forward, chin elevated, and the tongue pulled forward. Snoring is an indication of complete anæsthesia. By touching the cornea with the finger before the knife is used will generally indicate if anæsthesia is complete, so as to proceed with the operation. Should there be any reflex more of the drug should be used until all reflexes are abolished.

Contraindications: Diseases of the heart and lungs, pleuritic effusion, great nervous agitation (in the latter condition a hypodermic of morphia will often intensify and prolong the effects and relieve the agitation).

Dangers: A fluttering and feeble or wiry pulse, prolonged excitement during the first stage and cyanosis.

NO AUTO-TRUCK IN ENGLAND.—Last year there were sold in England 1009 Shire horses of all ages at an average price of \$463 per head. The growth of industrial enterprises has stimulated the demand for heavy draft horses and there is no prospect of their being supplanted by electrical or cable power in the heavy-truck service.—(*Breeder's Gazette*.)

[WRITTEN SPECIALLY FOR THE AMERICAN VETERINARY REVIEW.]

SAND COLIC AS SEEN IN FLORIDA.

BY J. G. SLEE, D. V. S., SECOND DIVISION SEVENTH ARMY CORPS.

While acting as veterinary surgeon for the Second U. S. Volunteer Cavalry Regiment, stationed at Panama Park, Fla., I had frequent occasion to note the effect of sand upon the horses of that regiment. Colics were of frequent occurrence, which at first responded to treatment, but the animal would return in a few days, from being a slight case to a more aggravated one, the pains being continual, the animal lying down the greater part of the day.

Although from a close investigation of the cases I suspected sand to be the cause, still I never saw the sand in the fæces, as it evidently was not passed in sufficient quantity to be noticed; neither could I get a passage of it from the ordinary physic doses I had at hand. Enemas administered by a long rubber hose inserted as far as possible, so as to fill the bowel, caused a passage of sand, but not in sufficient quantity to give relief.

I obtained some barium chloride, which I eventually used in all cases of colic, and found it to be just the drug needed. I treated over two hundred cases, using the barium chloride in doses of grs. v, intravenously, repeating the dose if necessary, occasionally in severe cases giving grs. x, and sometimes as high as grs. xv, but the dose of grs. v seemed to be sufficient to move the bowels and cause frequent evacuations of clear sand, slightly admixed with fæces. The sand would continue to be passed for the next day, showing that the impaction was broken up and peristalsis going on.

Post-mortem on these cases showed that the impaction was all in the first part of the colon, but the third or fourth movement after the barium chloride was administered always contained sand. I might add that I am not particularly struck with the action of barium chloride as a drug for all cases of colic, as its action is too severe, but for the cases I had it was just the drug, as I never lost a case in which it was used.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

CHRONIC HYDROCEPHALUS IN A HORSE.*

By WILFRED LELLMAN, V. M. D.,

Professor of Parasites, Parasitic and Canine Diseases, N. Y. College of Veterinary Surgeons.

On August 1st of this year I was requested to examine a horse which had been sick for several months. The owner told me that the animal had been treated by several veterinarians, but without success. The owner also told me that the diagnoses of the veterinarians differed altogether. The history of the case did not amount to anything.

Bay gelding, trotter, eight years old, with a record of 2:30. The animal being in a rather poor condition, lustre of the hair somewhat dull, skin very scaly, visible mucous membranes of normal rose color, the pulse is rather soft, somewhat irregular, subnormally slow, beating 28 to 32 times per minute; temperature per rectum normal; auscultation of the heart region reveals a rhythmic heart beating with intermission of 3 to 4 heart shocks. The first heart sound appears not quite distinct, rather lower than normal, whole ten second is rather abnormally strong; venous pulse quite high; respiration is performed nine times per minute, the horse taking off and on a deep breath.

Thorough examination of the digestive tract reveals slow peristaltic movements, fæces being small balled, containing undigested grains of oats and being covered with an abnormally thick coat of mucus. The appetite appears to be capricious.

Examination of the urine shows remarkably low specific gravity (1008). The urine is of light color and rather watery. The quantity of urine, however, seems to be within normal limits. The urine is slightly acidulated, which is most probably due to chronic intestinal catarrh; albumen and sugar are not present. Microscopical examination does not reveal anything important.

Examination of the eyes shows considerably dilated pupils. By means of an ophthalmoscope I find the optic papilla rather anæmic and somewhat atrophied. When watching the animal closely I noticed that the attentiveness is not normal, the eye is

* Read before the December meeting of the Veterinary Medical Association of New York County.

also not bright, being rather without expression, somewhat stupid, though when calling him the horse will lift his head and listen.

When at his feed the horse performs mastication rather slow and with frequent intermissions.

In order to make the examination perfect, I had the horse hitched up and put him before a wagon. Then I gave the horse a good drive from downtown (9th Street) up to 82d Street. There I noticed a pronounced attack of vertigo. I had to stop the horse for several minutes until he got over it.

I drove the horse back and examined him thoroughly again, after having him brought to a perfectly quiet place. I watched the horse for several minutes; it appeared to be drowsy, paying no attention to the surroundings, off and on moving the ears irregularly, the head being dependant. I put my hand into his ears, a manipulation which the animal did not object to at all. Thereupon I lifted the right leg and crossed the same over the left one in front, then putting the right leg to the floor so that the horse stands on its front legs in a crossed position. In this position I kept the horse for a minute and a half, in which time it never tried to retake the normal position. I stepped several times on the coronet, the animal not pulling its legs from under. After this examination I took the horse by the bridle and talked to him, trying to back him up. He showed only slow reaction and it was rather hard to back him up.

The examination took about half an hour. During this time the respiration had become perfectly normal, the pulse beating 32 times per minute. The pupils appeared considerably dilated. According to the result of my examination I was sure about my diagnosis, which was chronic hydrocephalus, including the possibilities of either cholestratomata of the vascular plexuses or some other tumor, or a parasite or exostosis on the internal surface of one of the cranial bones.

I told the owner my diagnosis and also the prognosis. I explained to him that the horse might stay this way for years, without getting worse, that during cooler weather an improvement might show itself, but that on the other hand the condition of the animal might all at once become very serious, so that he could not run the risk of driving the horse any longer. The owner took my diagnosis with much disappointment, as I noticed; he wanted me to do something for the animal to improve his appetite and condition. So I gave the horse a tonic combined with stomachics. The appetite improved and also

after four weeks I could notice a slight improvement in his condition. During these four weeks I examined the urine of the animal several times and found the urine of low specific gravity, sometimes of higher specific gravity. In the course of those changes I distinctly noticed a difference in the clinical symptoms; the latter being always less pronounced when the urine showed low specific gravity. This could only be derived from circulatory troubles within the kidneys, most probably due to functional troubles of certain vasomotor centres. About five weeks after my first examination I was requested to call as quickly as possible as the horse had dropped down and was not able to get on his legs. This sudden change was rather to my satisfaction. When I arrived the stableman told me that while he was walking the horse all at once, as he said, the animal got on its hind legs, made a dive through the air and landed on its knees and head; since he had made several trials to get on his legs, but was unable to do so. The horse was lying on the right side. After I had satisfied myself that no fracture of any bone was there, I proceeded to follow the regular course of examination. Temperature of the cranium considerably increased; temperature per rectum 103° F., yet pulse beating only 38 times, pupils very much dilated. Look is staring, without expression, stupefied. Very high pulse of the jugular vein, however, negative; heart shock is arrhythmic. The animal showing off and on regular convulsions. I injected hypodermically small doses of camphor and ether and ordered continuous cooling of the head with ice water. When I called back after two hours the horse was on his legs. He was put in a sling, being very drowsy and apparently weak on his front legs. I drew off the urine, which was rather concentrated and of comparatively high specific gravity; it contained small quantities of albumen. However, the animal was able to walk to his box the same night without help. For the next four days the horse showed symptoms similar to those of an acute lystomeningitis; the temperature being between $104-105^{\circ}$ F.; the cranium being very hot, head lowered down almost to the floor, standing most of the time in one corner, off and on running alongside the boards of the box stall.

I knew that it was not a case of acute hydromeningitis, but only an acute paroxysm, which is quite frequently to be observed during chronic hydrocephalus. This paroxysm occurred during the hot spell of September. No medicine was administered, the treatment consisting only in cooling the head and

keeping the horse in a dark box stall, light feed. The horse got over these acute symptoms all right, but in general the clinical symptoms of chronic hydrocephalus became far more pronounced. During the next few weeks I had occasion to watch the animal several times and I saw, when it was going to lie down, it would first crouch on its hind legs like a dog and then throw himself over sideways, then lying perfectly quiet. While eating, the mastication was always performed slowly and with long intermissions. Quite frequently the animal would stand there for a long time, the head down, the mouth filled up with hay, not chewing at all. When not eating, I saw several times that the extremities were in the most abnormal position, either all four legs gathered under the body or even the front extremities crossed. When water was put before the animal it would all at once put the head into the pail over the nostrils.

I advised the owner to have the horse destroyed, as neither he nor anybody else could run the risk to sit behind the horse. The owner did not seem to like this idea, he still thought I was mistaken; I then told him if my diagnosis was wrong I was willing to pay for the horse. We decided to call on two disinterested professional men, one being a veterinarian, the other a physician, a well-known pathologist. The horse was poisoned with cyanide of potash, the brains were carefully taken out; the correctness of my diagnosis was confirmed.

Post-mortem revealed the following alterations of the brain: atrophy of the cortical substance of the hemispheres, considerable dilatation of the lateral ventricles and also of the third ventricle, containing about 15 c.m. of serous liquid. Microscopically I found principally atrophy of the ganglia cells, on some places proliferation of glia cells, on others commencing fatty degeneration of the glia substance, desolation of fine blood vessels, infiltration of perivascular lymph sinuses with plenty of emigrated leucocytes.

A CASE OF RUPTURE OF THE FLEXOR METATARSI.

By J. A. SLOAN, Student, McKillip Veterinary College, Chicago.

A brown stallion, weight about 1000 lbs., was used on a newspaper wagon. In his work on December 11th he slipped on the ice, and when he attempted to rise his near hind foot slipped back a great distance. He immediately went lame. There was no improvement on the 14th, nor a great deal of soreness. An abrasion of the skin was visible just below the stifle joint, but was not swollen or sore.

Symptoms.—On examination he showed faulty extension of the injured leg, no flexion of the hock and curling up of the tendo-achilles in the posterior stride. In advancing he carried the leg forward by a swinging leg motion and also showed a short anterior stride, both being largely due to a disinclination to use the injured parts because of pain. Another feature was swinging leg limp, aggravated while walking over the sawdust, due to being obliged to raise the leg higher to clear the obstruction. On the 15th the leg was swollen from œdema, especially about the hock. There was little tenderness on palpation, partly due to the nature of the rupture, the tendinous portion of the flexor metatarsi and because the seat of rupture was deeply covered by the muscular portion of the extensor pedis.

Diagnosis.—Rupture of the flexor metatarsi.

Prognosis.—Unfavorable and condemned.

Post-mortem.—Revealed almost entire rupture of the tendinous portion of the flexor metatarsi with partial rupture of the muscular portion. It occurred about the lower part of the middle third. Extravasation of blood into the region of the rupture was considerable, and from small blood vessels. There was some inflammation extending from the seat of the lesion down to the tendons of insertion. There was no pus or sign of infection, which is rather remarkable, as there was an abrasion of the skin, and was probably due to the injury being deep-seated. Œdema of the hock was present, probably due to gravity, skin slightly tumefied, and fascia considerably infiltrated with serum. The abrasion of the skin was only superficial and did not extend deeper than the fascia and is a proof that the injury was not due to contusion in the fall.

The extensor pedis lies externally to the flexor metatarsi and showed little injury, and is another proof that the injury was due to violent traction and not to contusion.

A study of the functions of these muscles explains why such a rupture could take place. The tendinous portion has a mechanical function in transferring the motion of the stifle joint to the hock. The flexion of the hock is aided by the contraction of the muscular part. The great lesion of the tendinous part and the comparatively slight one of the muscular portion is due to a difference in structure. An apt illustration is to compare the tendinous portion to a string and the muscular to a rubber. If both were stretched the string would break, and the rubber would not. It is probable that the rupture of

the muscular portion was due to excessive contraction in trying to prevent the accident. A question of paralysis was raised. If the nerve of the muscle was paralyzed the tendinous portion would still continue its function with some ability to flex the hock.

A FŒTAL SKELETON.

By J. L. SKEEN, V. S., Boswell, Indiana.

On Dec. 24, 1896, a man owning a two-year-old heifer which was due to calve called in a neighbor, who said the heifer had lost her calf; so they began milking her. I heard no more from her until May, 1898. At this time I was at the farm treating some horses when Mr. Shaney, the owner of the heifer, told me he had milked the heifer for some time, and that she gave a good flow of milk, but she would not breed, and had not done well for some time; so he sold her to a Mr. Ferell, who turned her to pasture, where she thrived nicely, and on September 1, 1898, he sold her to the butcher, with the understanding that he was to feed her corn for three weeks.

On September 6th, Mr. Ferell came for me, telling me the heifer had some bowel trouble, and was straining very hard. I remembered her history, and told him I expected she had the skeleton of a calf in her, and went with him, finding the cow in the lot eating, but laboring about every fifteen minutes. She looked bright and in fair condition for beef. On examination I found the two carpal bones about half through the neck of the uterus. When removed I found dilatation enough to admit my hand, when I found the whole remains of the calf. The head and cervical vertebræ, scapulæ, etc., were clean of any fibres, lying loose, while from this on back to the hind legs was intact and had to be cut or torn to pieces to be removed. The liver, heart, kidneys and intestines were also intact, the liver feeling more like a greasy dish-rag than anything I can think of, while the tibia and tarsals, etc., had no flesh on them. One of the tarsal bones I found had forced itself full length into one of the fallopian tubes. There was no placenta, and the walls of the uterus were thick, feeling gritty, having no cotyledons. After delivering her, I washed the uterus out with a 1-500 solution of bichloride, gave the cow a stimulant, and left. She was eating next day, and made a nice recovery.

Now, the cow carried this fœtus twenty-one months over time, or thirty months in all, with but very little appearance of suffering.

This is not the first case of the kind that I have met with, having seen similar cases in sows, mares and cows. Thinking this might be of interest to some, like myself, who have never found anything of the kind in print, I forward it to you. I prize the REVIEW very much, and feel that it has repaid me its cost many times over in the one article of Prof. W. L. Williams (his translation of J. Schmidt's treatment of parturient paresis.)

LARGE ABDOMINAL CYST IN A MARE.

By F. O. RICHMOND, M. D. C., Phoenix, Arizona.

Some time ago my attention was called to a fine driving mare belonging to our Mayor. She had been turned out to grass some months previous with the expectation that she would drop a colt, but as no colt appeared and the time had elapsed for her to drop a foal from any exposure to a stallion she was brought in for examination. On examination I found her abdomen much distended but not more than would be expected in a mare heavy in foal and just off of grass. She was in good health and spirits and showed no signs of any derangement. I withheld my diagnosis until the following day, when upon a more thorough examination I located what I concluded was a large abdominal tumor, and I so reported to the owner. His decision was that I should take charge of her and dispose of her as I wished. I accordingly destroyed her.

On opening the abdomen about a gallon of sero-purulent fluid escaped, and lying hard on the floor of the abdomen, but not adherent to it, was an immense growth which I found to be a multifollicular pedunculated cyst, weighing about 150 pounds, containing pus, blood clots and sero-purulent fluid to the amount of several gallons. The cyst after being emptied weighed about 30 lbs. The only place it was adherent was by a neck, four inches in diameter, attached to or a part of the serous membrane a few inches anterior to the ovaries. The walls were from one to two inches thick, presenting a smooth serous coat on the outside; and on the inside a more or less dark colored membrane. There was no indication of inflammation with the exception of a very slight peritonitis. I have my opinion of the origin of the cyst, but I would very much like the opinion of some one better qualified than I. My opinion is that the cause was a partial rupture of a blood vessel, which caused a gradual destruction of the serous coat and adhesions in the immediate vicinity of the rupture; also a growth of tissue which strengthened the walls of the neck, making it more inelastic than the lower por-

tion, also nearly closing the opening into it, consequently, only allowing a gradual infiltration of the watery part of the blood into the cyst.

Now, if the Editor or some one will kindly give me his opinions, I will be obliged.

PHYMOSIS FOLLOWING BALANITIS.*

By W. J. MARTIN, M. D. C., Kankakee, Ill.

The patient, a black Percheron stallion, aged nine years and weighing 1900 pounds, was, on August 19th of this year, brought to my hospital suffering from a severe form of balanitis, the prepuce being enormously swollen. The owner stated that a few days previous, the horse had during the night escaped out of the building in which he was kept and was found the next morning in an adjoining pasture, in which were a number of brood mares with their colts. The supposition was that some of the mares had kicked the stallion on the prepuce or penis while that organ was in a state of erection.

Upon examination with the hand the swollen mass did not appear to be very sensitive, nor did there seem to be much pain present. The physical appearance of the horse was good; countenance was bright and cheerful; appetite fairly good; bowels moving properly, and on a very close examination it was found that micturation could be performed slowly and with slight difficulty, owing to the penis being imprisoned in the swollen prepuce; this organ could be felt about four inches up from the end of the prepuce. Irritation from the urine passing through this portion of the prepuce was suspected, but on examination there was none found from this cause. The inflammation seemed to have involved the entire interstitial structure of the prepuce and was evidently due to mechanical injury, although the exact seat of the original injury could not be found. The lower portion of the prepuce was not by half as large as the central part of the organ.

The treatment consisted of continuous irrigation with cold water for a period of one hour at a time, repeated several times a day. After each irrigation the prepuce was smeared over with oxide of zinc ointment; a small amount of this was also placed within the preputial orifice. The horse was turned loose in a large box stall and fed a limited amount of hay, oats and bran. A mild diuretic was also given in the drinking water once daily.

* Read before the Illinois State Veterinary Medical Association, Nov. 16, 1898.

After one week of this treatment the presence of an abscess became apparent upon the superior dorsal aspect of the prepuce. This was deeply lanced and about a pint of dirty gray pus evacuated. The usual treatment was continued, supplemented by dilute solution of formaline with which the abscess cavity was washed out. After the opening of the abscess, the swelling and induration of the prepuce rapidly subsided and it was hoped that the diseased area would soon return to its normal condition. In this, however, we were doomed to disappointment. In the course of another week or ten days the abscess cavity had entirely healed up, and the swelling had subsided sufficiently to allow of the prepuce being retracted somewhat, slightly upwards.

About this time marked symptoms of phimosis began to appear. The preputial orifice, which had hitherto allowed of the introduction of three fingers, now began to contract inwards and backwards, giving the prepuce a distinct curve backwards, and causing the horse serious difficulty in passing urine.

It was now decided, after overcoming the objection of the owner, to divide the prepuce by a longitudinal incision in the median line upon its under surface and retract the flaps and suture them to the superior surface of the prepuce. The stallion being placed on the operating table, the field of operation was thoroughly cleansed with a warm solution of formaline 1-50; the prepuce was then firmly grasped by an assistant and drawn outward as far as possible; then a curved probe-pointed bistoury was introduced between the penis and prepuce, and the contracted tissues of the latter was divided in the median line for a length of six inches. The edges of each flap were united by cat-gut sutures, then brought upward and firmly sutured to the skin of the superior portion of the prepuce with strong linen thread.

After division of the contracted prepuce, the penis could be brought down and extended outwards to nearly its usual length, and a short time after the operation the animal extended the penis and passed urine with evident sign of great relief. The after treatment consisted in keeping the parts clean with warm water and antiseptic soap, and afterwards when dry, smearing with unmedicated petrolatum ointment. The horse made a rapid recovery, and six weeks after the operation was performing his usual stud duties. This is the second case of phimosis occurring in stallions treated by this method with complete success.

DEATH FROM INTERNAL HÆMORRHAGE, THE RESULT
OF STRONGYLUS TETRACANTHUS.

By E. M. NIGHBERT, V. S., Mt. Sterling, Ill.

A standard-bred weanling was housed and well cared for, as he was poor, but apparently in fair health. He was well provided for in the way of a nice box stall, regularly exercised and had good food. This treatment was kept up for five or six weeks with little or no signs of improvement. Patient ate well and at times was lively.

The evening before his death he ate his feed, and on returning to feed next morning the colt refused to eat and appeared very dull, suffering from pain, and would lie down and get up, having at the same time bloody discharges from the bowels. At this time I was sent for and examined the patient at 12.30 P. M. I found there was pain, marked wasting and severe intestinal irritation.

I had the patient rise from his recumbent position, and after a few moments a discharge took place from his bowels saturated with blood. I diagnosed the case as hæmorrhage of the bowels from some cause, and that life was limited to but a few hours. Death took place at 4.30 P. M.

Autopsy revealed a large aneurism of the anterior mesenteric artery with several strongyli armatus and millions of nematoid worms covering the mucous membrane of the cæcum and colon and extending through the small intestines. Near the ilio-cæcal valve a large ulcer was noticed. At this point hæmorrhage took place, which was the immediate cause of death.

These parasites that were so numerous are identical with the strongylus tetracanthus described by Prof. J. T. Duncan, in his book entitled "Internal Parasites of the Horse," page 68.

Note. This is the first case under my observation of these parasites. I am now treating another patient out of the same herd for parasites, doubtless the strongylus tetracanthus, as they are numerous at times in the discharges from the bowels.

FOUR AT A BIRTH.—Thomas H. Merritt, the well-known farmer of the town of Ulster, who has a dairy of thirty-six cows, conducted by his son, Jacob Merritt, has a Holstein cow that on January 3 gave birth to four male calves. The calves were not fully developed, and died soon after birth. The birth of four calves at a time is something almost unheard of, Mr. Merritt says.—(*Kingston, N. Y., Freeman, Jan. 6, 1899.*)

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

EQUINE TUBERCULOSIS.—Though typical tuberculosis is not very common in horses, it seems that in some exceptions the disease can be observed almost frequently. In the *Veterinary Record*, four cases of equine tuberculosis are recorded by W. Cauldwell, F. R. C. V. S., three of which occurred in comparatively young horses: a grey colt, 18 months old, a bay colt, 2 years, and a bay filly, 3 years. The fourth case was in a brown gelding, 9 years old. In the first animal the disease was extensively generalized, in the second the bones and the spleen presented the principal lesions, the third presented tuberculous deposits in the spleen and udder, the fourth had principally tuberculosis of the mesenteric glands. The diagnosis of the lesions was confirmed by the examination of Prof. McFadyean.

CASE OF INTUSSUSCEPTION [*By F. Porch, F. R. C. V. S.*]
—It is not always the amount of displaced intestines that gives rise to severity in the symptoms, and whatever this amount may be the acuteness, severity and constant pain are sufficient suggestions of the presence of intussusception. And it is at the post-mortem that the importance of the lesion is discovered and the chances that possible relief might have been obtained, are found. In the case recorded by the author he describes a post-mortem which is unusual in the amount of intestines involved. He says: "About three and a half feet of the ilium was distended and hard from some substance within it. This was cut out, then from the distention was drawn out a mass of involuted bowel, which measured just ten feet." We think that few veterinarians have met such extent of intestine involved.—(*Veterinary Record*.)

LAME IN HARNESS ONLY.—Mr. T. J. Wooff, M. R. C. V. S., records the peculiar case of a horse which he had purchased lately for a client and passed as sound and which the following day showed lameness while at work in harness. Examined under different conditions he was found sound or lame. Sound in his standing position, sound in walking and trotting when led, but becoming lame as soon as put to work in action. The author concludes that the collar had some part in the production of the lameness, but is unable to locate the deeper cause of the trouble. This funny case reminds us of one in which the horse would literally play lame. He belonged to a physician in New York,

and when for some reason or another he did not feel like working, he would show lameness suddenly. Sometimes it was in starting from the stable, sometimes while on the road. The doctor told us many times how he cured (?) the lameness—a good snap of the whip.—[EDIT.]

FRACTURE OF THE SCAPULA (*Mr. R. C. Cochrane*).—The principal interest of the case is that after receiving the injury the animal was able to walk a distance of two miles showing comparatively but very little lameness. Being put under treatment, however, the lameness gradually increased to such an extent that the animal had to be destroyed. At the post-mortem, besides the alterations of the muscles of the shoulder and principally of the antea and postea spinatis, the scapula and humerus were found diseased. The articular surface of both were found to be to a great extent devoid of cartilage and the inner side of the articular surface of the scapula had been fractured. There was also great bony deposits all around the articulation.—(*Veterinary Record*.)

A BILIARY CALCULUS.—Though obtained from an ordinary-sized animal, the specimen found by Mr. J. J. Crowhurst is rare and unusually large. It is a calculus found in the gall-bladder of a half-bred Yorkshire and Tamworth sow, whose carcass weighed 29 scores and from which a liver weighing 7 lbs. 2 oz. was extracted. The calculus was pear-shaped and on section measured 4 inches in width and 3 in height—it filled the distended bladder almost entirely, as this contained only about a teaspoonful of gall-bile.—(*Veterinary Record*.)

STRYCHNIA POISONING.—Mr. Howe records the reviving of a four-year-old fox terrier which had shown evidences of strychnia poisoning by repeated attacks of characteristic fits. The suspicion of poisoning was established by the reports that poison for mice had been laid about and that the dog was very fond of catching them. After a convulsion he received six grains of chloral in solution, followed in one hour by another dose, which was repeated three hours after. A fourth dose was given the next day to relieve a certain amount of muscular stiffness.

ITALIAN REVIEW.

RADICAL CURE OF UMBILICAL HERNIA IN COLT [*By Vachetta*].—The author operated upon two colts, from eight to twelve months old, suffering from umbilical hernias, too ex-

tensive to be operated by bloodless measures. He resorted to the direct suture of the hernial ring. The patients, after fasting for 18 hours, were cast and chloroformed, the umbilical region shaved and disinfected on a broad surface, and the instruments most minutely aseptised. After an incision of 10 centimetres on the middle of the sac, the edges of the ring were either slightly scraped or excised, then sewed with silk soaked in sublimate solution; a similar suture was made in the skin and a coat of ichthyolized collodion put on, the whole wrapped up with a wadding dressing held in place by a bandage around the body. In one of the patients the dressing was removed on the tenth day and the wound found entirely cicatrized; in the other on the sixth day, there remaining a little suppuration at the point of sutures, but these healed rapidly.—(*Il Nuovo Escolani*.)

STENOSIS OF THE UTERINE OS—DOUBLE PARTURITION—LACERATION OF THE UMBILICAL CORD [*By Vachetta*].—With one of his colleagues, the author delivered a cow, fourteen years of age, of two calves, which were presented together, and with the condition of an os already cicatrized. A first foetus, extracted by force, was asphyxiated through the passages. While searching for the second a stream of rather venous blood escaped through the vulva, which made him suspect a laceration of the neck. The foetus was removed rapidly, came out bloodless, and soon died. The cord had certainly been lacerated during the extraction of the first calf. The cow did well.—(*Il Nuovo Escolani*.)

MIXED INFECTIONS IN CRYPTOCOCCI FARCY [*By L. Barnchello*].—The author has observed an enzooty of cryptococci farcy ("water farcy" of the French), which lasted 13 months, and affected 13 horses. The animals came from the country, where they had been at liberty in marshy lands, some convalescent after sickness or after having been fired. Barnchello thinks that it is through the numerous wounds (points of firing, scratches, cicatrices softened by the dampness) that the inoculations occurred in a place so favorably disposed for the conservation if not the multiplication of the germs. On this occasion Barnchello succeeded in obtaining on microscopic slides the *cryptococcus farcinniosus* in all the cases, pure at first, but later mixed with the various microbes of suppuration, specially *staphylococci*.—(*Il Nuovo Escolani*.)

SUBCUTANEOUS MYOTOMY IN CASES OF CONGENITAL STRICTURE OF THE ANUS [*By Dr. Tonini Giovanni*].—Rec-

commended by Dr. Lanzilotti-Buonsanti, and already successfully performed by Moliné and Labat, this operation has also given good results in the hands of the author with a two-year-old steer. He performed as follows: After disinfection as thorough as the region permitted, an incision was made with the straight bistoury, through the skin and the subcutaneous tissue below and about two fingers wide from the anal opening. Through the incision a probe was introduced between the sphincter and the rectal serous, and a blunt bistoury was introduced into the tract and the muscle divided from downwards upwards—that is, from its circumference towards the centre of the anus. The anus was kept dilated by the introduction of the hand into the organ. There was but little hæmorrhage. The wound was closed with two stitches and dressed with iodoformed collodion.—(*Clinic Vet.*)

SHOULDER LAMENESS CURED BY INJECTIONS OF SATURATED SOLUTIONS OF CHLORIDE OF SODIUM [*By Dr. G. Plotté*].—A four-year-old filly is lame on both fore legs (shoulder lameness), more marked on the left side. She receives four injections of saturated solutions (9 c. c. on the right shoulder and 5 c. c. on the left), carefully observing all rules of antisepsy. Three days after the parts are the seat of an œdema and present several points of abundant suppuration. Gradually the swelling and suppuration diminish, and the movements of the animal improve until complete recovery, which took place in about one month from the first day of treatment.—(*Clinic Vet.*)

MISSOURI VETERINARY BILL.

AN ACT TO REGULATE THE PRACTICE OF VETERINARY MEDICINE, VETERINARY SURGERY, OR ANY BRANCH THEREOF, INCLUDING VETERINARY DENTISTRY, IN THE STATE OF MISSOURI, AND PRESCRIBING PENALTY FOR THE VIOLATION OF THE SAME.

Be it enacted by the General Assembly of the State of Missouri, as follows:

SECTION 1. Immediately after this act goes into effect, the Governor shall appoint a board to be known as the "State Board of Veterinary Examiners," which shall consist of five veterinarians, each of whom shall be a graduate of a recognized and legally chartered veterinary school, college or university; each shall have had not less than five years actual practice in his profession subsequent to his graduation, and shall be a resi-

dent of the State of Missouri. They shall hold their offices, one for one year, one for two years, one for three years, one for four years, and one for five years, or until their successors shall have been appointed, and each year thereafter, the Governor shall appoint one member to fill the vacancy caused by the expired term, who shall serve for five years, and he shall also fill by appointment any other vacancies that may have occurred at any time by death, resignation, or from any other cause.

SEC. 2. The Board of Veterinary Examiners shall elect from its members a president, a secretary, and a treasurer, and may adopt such by-laws, rules and regulations as it may deem proper for the performance of its duties, and to carry into effect the provisions of this act, providing said by-laws do not conflict with the constitution or laws of this State or the United States. They shall also adopt a seal, which shall be affixed to all certificates issued by them, and the President and Secretary shall sign all such certificates.

SEC. 3. It shall be unlawful, after this law goes into effect, for any person to practice veterinary medicine, veterinary surgery, or any branch thereof, including veterinary dentistry, in the State of Missouri, without having previously obtained a certificate from the Board of Veterinary Examiners.

SEC. 4. Applicants for certificates to practice veterinary medicine, veterinary surgery, or any branch thereof, including veterinary dentistry, in the State of Missouri, shall file their applications with the Secretary of the Board of Examiners. All applications shall be in writing. If the applicant be a graduate of a recognized veterinary school, college or university, he shall present his diploma to the board, or give satisfactory evidence of his being a graduate of a recognized veterinary school, college or university. The Board of Examiners shall examine all diplomas or such evidences of graduation as may be presented, as to their genuineness and sufficiency.

SEC. 5. Any person who shall have practiced veterinary medicine, veterinary surgery, or any branch thereof, including veterinary dentistry, for a livelihood, in this State, continuously for five years before the time this law goes into effect, may obtain from the board a certificate to practice said veterinary medicine, veterinary surgery or veterinary dentistry, as the case may be, if he shall make application to the Board of Examiners, and give satisfactory proof to said Board of Examiners that he has practiced continuously in the State of Missouri for five years before this act takes effect.

SEC. 6. Any person not a graduate, and not having practiced in this State continuously for five years before this act goes into effect, may obtain a certificate to practice veterinary medicine, veterinary surgery, or any branch thereof, including veterinary dentistry, as the case may be, in this State, on giving satisfactory evidence to the board that he has pursued the studies of his profession for three years, and on submitting himself to such examination as the board may require, providing the result of such examination is satisfactory to the board. Such examination shall be conducted before at least three members of the board, at the time of the board's annual meeting and upon due application.

SEC. 7. All persons to whom certificates are issued by this board, to practice veterinary medicine, veterinary surgery, or any branch thereof, or veterinary dentistry, in the State of Missouri, excepting only those who qualify under section 5 and section 6 of this act, shall be graduates of a legally authorized and recognized veterinary school, college or university, and shall comply with the provisions of this act. It is further provided that this board shall not recognize any diploma or other evidence of graduation presented for examination under section 4 of this act, unless the school, college or university issuing such diploma maintains a three years' course of instruction, and delivers annually a full course of lectures and instruction in veterinary medicine and veterinary surgery, the time of said course of lectures and instruction being not less than a period of six months for each collegiate year.

SEC. 8. Upon the approval of the diploma, or upon satisfactory evidence that the applicant is entitled to a certificate under the provisions of section 4, section 5 or section 6 of this act, said Board of Veterinary Examiners shall issue to such applicant a certificate to practice veterinary medicine, veterinary surgery, or veterinary dentistry, as the case may be, in this State; said certificate to indicate the provision of this act under which it was issued, and said certificate, except when obtained by fraud, shall be conclusive evidence in any prosecution, of the right of the lawful holder thereof, to practice veterinary medicine, veterinary surgery or veterinary dentistry, as the case may be, in the State of Missouri.

The board shall have power to reject the application of an applicant for a certificate who is not fully qualified under the provisions of this act.

SEC. 9. A filing fee of fifteen dollars (\$15.00) shall be paid

to the Board of Veterinary Examiners with each application for a certificate under the provisions of this act, and in no case shall an application be filed by the secretary if the fee is not paid. In case of the non-approval of the application, said fee shall be forfeited to the Board of Veterinary Examiners.

The secretary shall turn over all funds promptly to the treasurer, taking his receipt therefor.

SEC. 10. It shall be the duty of said Board of Examiners to keep a register of all practitioners to whom certificates are issued under the provisions of this act, and to register the name, age, and time spent in the study and practice of veterinary medicine, veterinary surgery, or veterinary dentistry, as the case may be, and if a graduate, the name and location of the school, college, or university granting his diploma. Such records shall be prima facie evidence of all matters therein recorded, and shall be open to public inspection at all times, within reasonable hours, at the office of the secretary of the board.

SEC. 11. The president and secretary of said board shall have the power and authority to administer the oath, and to take testimony in all matters relating to its duties.

SEC. 12. Any person practicing veterinary medicine, veterinary surgery, or any branch thereof, including veterinary dentistry, in the State of Missouri, without having obtained a certificate so to do under the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction, thereof, shall be punished by a fine of not less than fifty dollars (\$50.00), nor more than three hundred dollars (\$300.00), or by imprisonment in the county jail for not less than ten days, nor more than sixty days, or by both fine and imprisonment, together with cost of prosecution for each and every offense, and one-half of all fines collected in accordance herewith, shall be paid into the common school fund of the county in which said fines are collected, and one-half to the treasurer of the Board of Veterinary Examiners.

Nothing in this act shall be construed to prohibit bona fide students from prescribing under the supervision of duly authorized preceptors, nor to prohibit gratuitous services in cases of emergency.

SEC. 13. Any person shall be regarded as practicing veterinary medicine, veterinary surgery, or veterinary dentistry, within the meaning of this act, who prescribes for, or in any way treats a sick or injured animal or animals, for compensation, or with the understanding that he is to receive compensation.

SEC. 14. The members of the board created by this act

shall serve without compensation, but their actual traveling and incidental expenses necessary to the performance of their duties shall be paid out of the fund received under the provisions of this act, and under no circumstances shall any expenses be paid out of the State Treasury.

SEC. 15. All moneys received by the treasurer of said Board of Examiners shall be put into one fund, and all expenses of said board shall be paid out of this fund upon warrants drawn by the secretary and duly countersigned by the president. The treasurer shall give to the State a standard surety bond in double the amount of the fund entrusted to his care.

SEC. 16. Said board shall meet as a Board of Examiners in Jefferson City, Missouri, on the second Monday in January of each year, and special meetings may be called by the president on a written request signed by at least two members of said board, at any time and place designated by the president. At each meeting the secretary shall lay before the board all applications received, and if the board finds said applicant or applicants to be entitled to a certificate under the provisions of this act, certificates shall be issued thereto in accordance with the provisions of section 8 of this act, provided that each application shall be accompanied with the fee provided for in section 9 of this act, but if any application be rejected by the board, the secretary shall notify the applicant by mail of such rejection.

SEC. 17. At the end of each official year of the Board of Examiners created under this act, the treasurer thereof shall make a report of the receipts and distribution of funds in his hands during the year to the board, and the president of the board shall forward a copy of the same, with a brief report of the work of the board during the year, to the Governor of the State.

SEC. 18. All acts or parts of acts in conflict with this act are hereby repealed.

BIBLIOGRAPHY.

PRACTICE OF EQUINE MEDICINE; a Manual for Students and Practitioners of Veterinary Medicine, Arranged with Questions and Answers, with an Appendix Containing Prescriptions for the Horse and Dog. By Harry D. Hanson, D. V. S., Associate Professor of Theory and Practice in the American Veterinary College. New York: H. D. Hanson & Bro.

This important addition to English veterinary literature has reached us, and presents itself in the shape of a very neatly printed and bound volume of some 250 pages, a comprehensive

idea of the contents of which may be obtained from the above excerpt of the title page. The author affectionately dedicates his maiden effort to his esteemed friends and teachers, Profs. Robertson and Liautard, and in his preface makes acknowledgment that the work is not intended to be considered as an effort to cover the field of pathology in the sense that the larger and more comprehensive works do, but that the intention is that it may be a help to students in securing their degrees, passing State Boards, and to busy practitioners for quick reference. As fulfilling the objects above stated, Prof. Hanson has succeeded most admirably, for he has placed before his readers in small compass and plain English a great mass of practical knowledge, which, stripped of all attempts at rhetorical elegance and strained scientific technique, appeals to those who have not the time nor taste for a class of literature which in recent years has become so popular, but which makes one yearn for the beautiful and smooth-flowing language of Percival. There is no question but that the acutely scientific works are more in keeping with modern advancement, and find their proper place in every veterinarian's library, but to the hard-pressed student in his preparation for examinations they are perplexing, while the practitioner has little time to wade through them in his efforts to refresh his memory. Dr. Hanson is a practical, studious, energetic man of ambition, with considerable experience as a practitioner and teacher, well equipped for the work which he has excellently accomplished, and it deserves a popularity which shall encourage him to pursue his good work for his profession.

VETERINARY THERAPEUTICS (*Thérapeutique Vétérinaire*.) By Prof. L. Guinard, of the Lyon Veterinary School. Published by J. B. Baillière & Son, 19 rue Haute-foeulle, Paris.

The "Veterinary Encyclopedia" of Prof. Cadéac is still progressing regularly. The subject of therapeutics has been placed in Prof. Guinard's hands, and of the two volumes that it demands the first is offered to the public.

Therapeutics is the part of medicine which interests the practitioner the most. Now, that the means of diagnosis and the study of diseases have reached such a degree of perfection, the veterinarian can no longer have recourse to therapeutic agents without knowing exactly their mode of absorption, their effects, etc.

Written from an essentially practical point of view, this treatise of Prof. Guinard considers in each group the most useful drugs, and studies them as types as completely as possible.

In this first volume the contents are divided into two parts. In the first are treated all that relates to drugs and their medical actions, mode of administration, absorption and elimination. In the second, we find the drugs proper and their indications. Prof. Guinard reviews the drugs which act directly on the causes of diseases, by protecting the organism against the action of microbes, or removing the parasites that infest it. These are the antiseptics and antiparasitics. The new sero-therapeutic methods are presented with much care. The author then considers the drugs which act as modifying agents of organs and of their functions: he studies those of the nervous system, and completes his work by a long review of the anæsthetics.

It will prove most useful to the practitioner.

CORRESPONDENCE.

PROGRESS OF VETERINARY ARMY LEGISLATION.

MAYAGUIZ, PORTO RICO, January 10, 1899.

Editors American Veterinary Review :

DEAR SIRs :—This subject may be “as tedious as a twice-told tale, vexing the dull ear of a drowsy man;” nevertheless, it may be of some consolation to those who have worked and laid awake nights doing the drudgery and devising means and schemes for the emancipation of “His Nibs in the Army,” to know they have been given credit for their efforts, and, although no other reward may be forthcoming, still, the consciousness of a hard up-hill pull almost successfully accomplished will be a rainbow in their souls.

Ten years ago the undersigned entered the Fifth Cavalry with the intention of devoting his energy to the dragging of the army veterinary service out of the bottomless post hole where it had been peacefully reclining from time immemorial, but it was soon discovered that the “Customs of the Service” were as firmly fixed and established as the H and O in a molecule of water, and that to do anything worth mentioning the whole system would have to be changed and probably reorganized. Soon after entering the service we became cognizant of the fact that in the person of Dr. J. M. Treacy, of the Eighth Cavalry, the service had one of the most energetic, untiring, irrepressible and determined workers for the advancement of the army veterinary service, and I do not hesitate to say here that any benefits that have accrued or any progress made toward bettering the

condition of "His Nibs in the Army" is largely due to the efforts of this intelligent and "stay with it" gentleman, who knows not defeat and whom it is useless to endeavor to "turn down."

Some eight years ago I was requested by Dr. Treacy to visit Washington in the interest of a bill giving the veterinery surgeons a rank. The visit was made, and Dr. Treacy furnished out of his private funds half of the expense, amounting to a considerable sum. At that time the General Commanding (General Schofield), having been interviewed, and having ascertained what we desired, suggested a bill, the one now before Congress being a counterpart of it, giving the rank, pay and allowances of a second lieutenant, and promising his support, but for some reason that could never be fathomed by us the promised support was withdrawn at the last moment. The then Secretary of War (Mr. Elkins) also promised his support, and in this connection thanks are given to Dr. Barnwell Robinson, of Washington, who exerted himself in our favor. During this time subscriptions of small amount were received from nearly all of the members of the service in the army. Although defeat confronted us with "the deadly gleam," we were still aggressive, and once more, with Dr. Treacy as a standard-bearer, we stormed the powers that be. At this period we were wonderfully aided by the assistance of Dr. Corcoran, of the Eighth, also, who interested his political friends in favor of our struggle. Dr. Corcoran has worked hard and faithfully, and contributed his funds and the product of his brain without stint, and if any progress has been made "Barney" ought to receive credit for his share in the battle.

At this time the bill got so far as to be reported favorably in the House, where, alas! it died, and with it our hopes were buried; but again the invincible Treacy, "he is the rock, the oak not to be wind-shaken," brought forth the dear (in more respects than one) remains, gave it a hypodermic of antitoxin, and placed it upon its "pins." This time, at the suggestion of the undersigned, in fact, after begging that it should be done, Dr. Tempany, of the Ninth Cavalry, visited Washington in the interests of the renewed effort, but Tempany made no progress whatever, and, in fact, never deemed it necessary to give an accounting of his stewardship. The bill fell flat, our diaphragms depressed, and we were afflicted with that peculiar feeling in the cardiac portion of the stomach that one has when he wishes he were some place else than close by. I regret that Tempany

made a failure and apologize for his silence and for myself. Another effort was made, and this time our faith was well placed in the person of Dr. J. P. Turner, late of the Sixth Cavalry, whose efforts were fruitful of results; he knew how to take the tide when it served and impressed those with whom he came in contact with the justice of our cause. He obtained the sanction of the War Department, and a favorable report of the Military Committee of the House, but it is with regret that we chronicle that his faith was lacking, for he resigned his place to enter the Bureau of Animal Industry. He is now, however, filling an official position in the District of Columbia, and he will always fill a warm place in the hearts of his comrades in the army.

Dr. Salmon, Chief of the Bureau of Animal Industry, so well known to all veterinarians, has exerted himself unceasingly in behalf of our cause, and to his efforts we owe a great deal. He has given his influence to our bill, and has cast himself in the breach when things seemed hopeless.

We cannot forget the aid given us by that champion of veterinary rights, the AMERICAN VETERINARY REVIEW, which always has opened its pages to our recitals, and has given the influence of its editorials to our cause. We also thank the U. S. V. M. Association and the Keystone and New York Veterinary Medical Associations.

The bill as it was introduced in the army reorganization provided, section 2 of that bill, that we should be paid \$1200 a year and be enlisted men. If that section became a law I believe there would not remain in the service more than three men and these only long enough to retire. The service would then fill up with the rag-tag and bobtail of the profession; those without ambition, sentiment or energy, devoid of professional pride and spirit, the hangers-on of the outmost edge and unknown outside of the livery stable, in which they had made an attempt to practice and became proficient in "crap" games through association with the stable "swipes." So much for the foresight of the framer of that section. The Military Committee made a revision of that same section, and as it now stands it provides that the army veterinary surgeon shall be given the rank, pay and allowances of a second lieutenant of cavalry. This will insure better service, and, as it provides for two vets to each regiment, the ground will be covered more completely and more satisfactorily. The Military Committee has recognized the fact that veterinary medicine is abreast of the times, and is not filling any back seat. Their report is as follows:

"In order to make effective veterinarians in the cavalry we believe that it is absolutely important for them to have rank of a commissioned officer, so that their orders will be respected and the health of the animals of the United States preserved. The veterinary science has made wonderful progress in the last few years, and in order to get the best talent for the army of the United States it is absolutely necessary to give them better social standing. To-day the Government is losing large sums of money on account of the defective arrangement in this department of the Government, and the Agriculture Department, which recognizes the veterinarians as belonging to an educated profession, is now called upon to furnish skilled veterinarians to treat the animals belonging to the Government and used in the War Department. Unless this change is made, we believe it will be impossible to get the best class of men in the service of the War Department."

You can help us out by writing to your representative and having this section (No. 2) of the army reorganization bill passed as amended by the Committee and at last placing the service in the army on a plane that is its by right of education. This bill will come up in Congress immediately.

GERALD E. GRIFFIN, *Vet. Surg. 5th Cavalry.*

AS TO THE TREATMENT OF PARTURIENT PARESIS.

COLUMBIANA, OHIO, Jan. 23, 1899.

Editors American Veterinary Review:

DEAR SIRs:—I see my communication in the January issue. I beg space to say that in my haste I omitted the word "enema." It should read: "With sodium chloride and magnesium sulphate enemas," for I do not wish any one to give the above orally, as most all cases of parturient paresis I treated by giving large cathartics by the stomach died. Since writing you I have had my fourth case recover in succession. I shall continue to use Schmidt's treatment, as there is always a change for the better in a few hours, and I do not expect them to relapse.

Fraternally yours, J. B. CAUGHEY, D. V. S.

THE JANUARY REVIEW announced that Dr. H. D. Fenimore, of Knoxville, Tenn., had been appointed an inspector of the Bureau of Animal Industry, and assigned to duty at Kansas City. We are now informed by the doctor that the appointment was not accepted, and that he remains in charge of his practice at Knoxville.

OBITUARY.

J. C. MEYER, SR.—This venerable and beloved veterinarian, pioneer and ever loyal, died of heart failure, at his late residence, 2230 St. James Street, Cincinnati, Ohio, on Jan. 15, full of years and honors. His death was superinduced by grip, from which he had suffered for a week or more. He was born September 13, 1824, in Canton Schaffhausen, Switzerland, and was left an orphan at eleven years. His early schooling was received at Zurich, and his veterinary education at Stuttgart and Vienna, graduating from the latter place in 1846. Coming to America in 1849, he located at Reading, Pa., afterwards at Trenton, N. J., where he met with only moderate success. He removed to the West ten years later, establishing himself at Cincinnati, where he practised uninterruptedly until 1893, when failing health compelled his retirement from professional pursuits. He was a member of the American Veterinary Medical Association, the Ohio State Veterinary Medical Association, the Deutsche Veterarische Club, the German Pioneer Verein, and the Musicians' Benevolent Association. He leaves a widow, four daughters, and one son, Dr. J. C. Meyer, Jr.

No man in this country was better known to the older members of the profession, nor more beloved for his many good qualities professionally and personally, and his demise will be sincerely mourned in all quarters of the country where veterinary medicine is known.

ITEMS FROM REVIEW SUBSCRIBERS.

—"Happy New Year to the REVIEW. I enjoy it very much."

—*J. A. Dresback, Stanberry, Mo.*

—"I want the REVIEW all the time."—*D. L. Boor, Muncie, Ind.*

—"I derive much pleasure and instruction from the REVIEW."—*P. K. Nichols, D. V. S., Port Richmond, N. Y.*

—"I am always an interested reader of your valuable REVIEW."—*F. O. Richmond, M. D. C., Phœnix, Arizona.*

—"I consider that the REVIEW improves with each succeeding issue, and am glad to be a subscriber. So many points of interest are in it that I read and re-read it in order to fully digest its contents."—*G. R. Young, D. V. S., Omaha, Neb.*

—"I am very glad to add my humble tribute of praise to

your great VETERINARY REVIEW, for having kept me so well informed on all the professional topics of the day. With very best wishes for the success of the REVIEW, I am, very truly,
T. S. Childs, Saratoga Springs, N. Y.

—"I would not like to be without your journal. When I look around me and see the country full of "hoss doctors," who take cases on the no-cure-no-pay plan, I feel that you should not allow them to be subscribers to the REVIEW, as one I know reads it regularly; it is too good for him. I had one of them ask me the other day how I drenched a cow so that the draught would go first into the third stomach. Rub his name off of your list."
—*I. J. Pence, Troy, O.*

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

(Continued from page 703.)

Dr. W. W. Johnston, M. D., D. V. S., of the Bureau of Animal Industry, stationed at St. Joseph, was then called upon, and read the following paper, entitled

"MUNICIPAL MEAT AND MILK INSPECTION."

For the purposes of this paper, the subject will be treated from the popular standpoint, with statement of facts in relation thereto, and not present in the full details of the pathological conditions of the diseases mentioned, the presumption being that all present are familiar with that part of the subject. I do not hope to present new and more cogent reasons for such inspection than are well known to you. Perhaps the agitation of the subject will serve the purpose of educating the public to a point where they will insist upon the most complete and painstaking inspection, and demand that all avenues of trade be closed against meats and dairy products that are diseased, unwholesome or offensive, or repugnant to the consumer. Referring to meat inspection Dr. Salmon, chief of the B. A. I., says: "A meat inspection service which does not protect the consumers from meat offensive to them, and which they would under no circumstances purchase, if they knew its character, would not be worthy of support." The importance of meats and milk as articles of diet is well known to all. Their use is universal. We daily realize their importance as we sit down to the typical American table. Our American people, from the man who earns his livelihood by manual labor to those who

fare sumptuously every day, consume meat more largely than any nation, the per capita being greater. Australia may exceed ours, but that is not at all certain. The law of supply and demand is inexorable as fate, and the demand for meats and dairy products is shown in the multiplication of plants all over the country for the slaughter and sale of animals for food. The evolution of the milk business from the day of small things to its present colossal proportions is in line with the commercial law of supply and demand.

Here now we have two of the most important problems before us—meat and milk inspection. The necessity of these products for the maintenance of health and vigor is admitted by all. How can the end be attained of perfect inspection? In a measure the public is protected from diseased meats by federal meat inspection. By this I mean that all meats that bear the seal of the inspection service of the B. A. I. are wholesome and in so far as they are used they are as near perfection as can be attained. But we must remember this service extends only to those establishments that do an interstate and foreign trade. Fortunately these supply meat dealers all over the country with their products, and diseased and unwholesome meats are not permitted to reach the public but consigned to the fertilizer tank and destroyed as articles of food. Those slaughter houses in almost every municipality, numbering from one to a dozen, that are owned by butchers who buy their stock for slaughter wherever they choose are beyond the reach of the federal authority. State and municipal law comes in to control if any law exists. These places elsewhere have been visited by the writer and the unspeakable filth and lack of all cleanliness points them out as sources of disease and a standing menace to the health of consumers of meats slaughtered there, without consideration of the class of animals killed. It is true there are exceptions to the rule, but they are few and far between. Let us consider briefly the situation. If any adequate reasons ever existed for federal meat inspection the same reasons are of equal force as applying to state and municipal inspection. Here we have presented to us the wise, thorough and exacting federal inspection and the open door of absence of sufficient state and municipal law through which the public receive the uninspected products of individual butchers. That a major part of such product is free from disease no one can deny, but there is absolutely no protection against diseased meats going on sale from them.

The speaker here mentioned some of the diseases which are met with in licensed abattoirs. He resumed :

During the year 1897 in the cities of the United States that have municipal inspection there were 641 cattle, 1527 sheep, 40 calves and 2081 hogs that had been rejected in the stock yards by officers of the Bureau of Animal Industry. When we know that there are only thirty-three cities where governmental inspection is practised, and in some instances, at least some of these thirty-three, are without municipal inspection, we can see what an open door for fraud exists. The animals killed and condemned were by municipal authority. In the absence of such authority the owner of stock that is diseased would naturally avoid sale where federal inspection would condemn the diseased animals, and the open door of unregulated slaughter houses in the towns would be his easy opportunity. Even with the most rigid care the love of money prompted by avarice will try to evade all law, regardless of human life or comfort.

If such rascality is practised so openly where there are state laws, what could we expect with the "open door" for all? I do not charge all butchers with willful criminality, for there are many just and honest men, but the fact remains that leaving inspection to him assumes knowledge on the part of the butcher that he does not possess, and makes him responsible for conditions he is not able to recognize. What is the remedy for the "open door" to the public slaughter houses in towns and cities! Obviously municipal control and regulation of all animals slaughtered, and their products. How is this to be done? Cities have the power to pass such ordinances as will cover every needed point. I cannot at this time specify the different plans by which every local butcher is protected from loss in his business and the stamp or official seal of soundness be affixed to his products so it will be freed from all suspicion of disease and stand equally as good before the public as the meats from abattoirs licensed by the United States authorities. For this inspection to be complete a man who is an educated veterinarian should have charge of inspection of all animals killed or offered for slaughter. The application of the rules of the B. A. I. to municipal inspection in the form of city ordinance will cover the case. It is said no law is stronger than public opinion behind it. I feel confident public opinion in any city will be forceful enough to sustain all municipal legislation on that subject. Next the veterinarian appointed to enforce the ordinance should be a member of the Board of Health, for it certainly is

a matter concerning the health of any people. He thus has representative men to reinforce his decisions. Again, it is not a question of politics, but of efficiency, and should be removed from politics. Next, he should receive a salary commensurate with his services, and devote his time to the work along with other duties that will properly come within his province. If not an actual member of the Board of Health, he should be the sanitary adviser to the Board in all matters connected with the meat and milk supply.

The municipal control of the milk supply in cities and villages is one of the necessities of the times if we wish to keep disease from doing its deadly work. The present conditions of the milk industry are well known to but few. Milk inspection should be so controlled that all products from the dairy to the consumer should have the most careful scrutiny and intelligent observation, to the end that in so far as is possible only pure milk will be sold. One has said "that such measures are justified by the existence of a series of conditions which menace the healthfulness of the product from source to its distribution. By the fact that it is the most important article of human dietary from infancy to age under all conditions; that from properties peculiar to it, it is most susceptible to contaminating influences, including bacierial growth; and, finally, by the fact that notwithstanding its relationship to certain diseases, and especially tuberculosis, the state or health authorities are woefully apathetic or negligent in their attitude toward it."

That milk is the vehicle by which disease may be transmitted is a well established fact in the minds of all educated men, both in the medical and veterinary professions. Dr. Gill, of the New York Veterinary College, says: "Milk is unfit for food under several conditions. When derived from animals in conditions unfit to furnish milk, as certain physiological conditions like advanced pregnancy or the calving period.

"*b.* When it contains infectious matter.

"*c.* When adulterated."

Adulteration may consist in the addition of some substance to the milk, as water or coloring matters; the subtraction of some constituent like cream or the addition of preservatives such as borax, formaldehyde, etc. The determination of adulteration obviously lies in the domain of chemistry. As all modern veterinarians are taught chemistry thoroughly, and its relation to milk inspection, they can be of invaluable assistance to the health authorities.

I will mention a few of the ways in which infection may be introduced: From the animal supplying the milk; from the persons handling the milk; from various substances that come in contact with or are introduced into the milk. In how many ways the animal may be the source of infection it would require too long a time to describe; but tuberculosis and other constitutional diseases, local disease, internal and external, of the udder or teats suggest abundant causes of infection. The determination of these causes can only be decided by the veterinarian. At present, so far as I know, in the city of St. Joseph, there is no municipal control of the milk supply. At this time it would not be proper to go into detail, how tuberculosis, diphtheria, scarlet fever, and typhoid fever can be sown broadcast by an impure milk supply. That diseased and tuberculous cows are in the dairy herds is true, if the observation and experience of other cities is true.

The speaker then recited a few instances coming under his notice of dairy cows infected with tuberculosis. He also cited a number of provisions that should be observed in milk inspection, and then continued:

The municipality through the Council or Board of Health, have the undoubted right to take the whole subject of meat and milk inspection under city control, and it is for them to enact ordinances protecting the public from diseased meat and impure milk. The salary of an educated and competent veterinarian would approximately be \$1200 a year, perhaps \$1600. Place the meat and dairy inspection under his control as a city official, and license all butchers and dairymen, but hold them to a strict conformity to the ordinance or revoke license, and publish the fact. That the public health would be safeguarded by such municipal control and the mortality of the children be decreased there is no doubt, or the experience of cities that have complete control is without value. Human life should not be so cheap that hundreds may be sent to untimely graves through lack of sanitary measures so easily enforced and at such a small outlay of money. To neglect wise and thorough control of the meat and milk supply for any city is to invite the dissemination of diseases the most prevalent and fatal in their character. Are the people willing to take the risks? I am fully persuaded in my own mind that the lack of such inspection and control is due not to willfulness but to indifference and ignorance of the true conditions. Let the people agitate until their will is obeyed.

DISCUSSION OF DR. JOHNSTON'S PAPER.

Dr. Stewart: This is a subject in which we are all interested. It is a most excellent paper, and leads the way to intelligent thought upon the subject. The paper cites several eastern cities having milk inspection, but no western city is cited. Kansas City has regulations governing milk and meat inspection. It has a meat inspector whose greatest interest is in standing in with the mayor. Getting positions through political influence has a bad influence towards degrading the inspection. Some large dairies near Kansas City have boasted that they could afford to pay large fines, but that it was better not to allow it to go too far, for fear of public opinion. Statistics in eastern cities indicate a great decrease of mortality through a proficient meat and milk inspection. Meadville, Pa., has probably the best system of inspection of any in the country, and Pittsburgh comes next in line. The inspection in those cities is in complete control of veterinarians. These gentlemen prepare papers at intervals giving legislation enacted covering the subject, also going into the detail and character of the work. St. Louis has a system of milk inspection, and there the power behind the throne is the brewer, who furnishes to dairies around St. Louis grains and other offal for feeding purposes. The brewers have a strong political power, and in conversation with the inspector I was informed that he found it convenient not to press his inspection too far. This is a serious question, and other cities would do well to emulate Meadville and Pittsburgh. I would like to call attention to one family being affected with tuberculosis from using the milk of an affected cow. It is the family of Harper Bros. One child showed symptoms of meningitis, and the neighboring family had a child develop it in another form. Both got milk from same source. All other surroundings were good, and everything pointed to the cow as the source of infection. Our veterinary literature is full of such cases, and no veterinarian will doubt the efficacy of milk inspection. A pure water supply is a feature that is often overlooked; it ought to be of the best, for washing the utensils and supplying drink to the animals.

Dr. Peters: I came here to listen and not to discuss. I wish to compliment Dr. Johnston on his paper. I feel well paid in coming the many miles from Nebraska that I have. Many points of interest were brought out in the paper, and one of the most important is the water supply. From a bacteriological standpoint a great deal of damage can be done by an im-

pure supply of water. A separator is in use in every dairy, and you will notice that pure water is used, or contamination takes place. Typhoid germs and the bacillus colli communis are the commonest infections, the latter of which is so dangerous to young children. In regard to how to go about the inauguration of municipal inspection is a problem, in which I am much interested. Veterinarians in our State are trying to educate the people. We are watching the towns and cities of the East and studying their methods, and profiting by their experience, and we hope to have a State veterinarian provided for by the Legislature, and we also hope to have a good municipal inspection. We will eliminate objectionable features and profit by the mistakes of those who have already established inspection.

Dr. McCurdy: I would like to ask Dr. Johnston to repeat what he suggested to arrive at the best method of meat inspection.

Dr. Johnston: I know of nothing better than to apply the rules and regulations of the Bureau of Animal Industry.

Dr. McCurdy: This subject has been agitated very often in the East and officers have been appointed to carry out the inspection, and it has been carried out for some time. Those who have studied it find that it is very unsatisfactory. The only remedy is to carry it out in the manner provided by the Federal government. Have slaughtering all done in a central abattoir under persons of ability, veterinarians who will see all slaughtering done in the city. It seems to be impossible to get it done in any other way. It is only done in one city, viz., New Orleans. They have there a system organized by a graduate of the University of Pennsylvania, who saw that the only way out of the difficulty was to have the slaughtering done at a central abattoir, and this is the only way in which it can be carried on.

Dr. Peters: I wish to state that Auburn, Ala., has now a central abattoir. The idea originated in Europe, where they have one central abattoir. City council passed ordinance providing for this, local butchers tested its constitutionality and the action of city was sustained by the Supreme Court.

Dr. Moore: I was just thinking that if the public could only see some of the smaller slaughter-houses that we see, such a howl would be raised that no man could run for office who would not support a municipal inspection ordinance. One little instance will illustrate. A few weeks ago I was called to see two cows, and found both tuberculous, one of them showing it on the udder. I advised destruction of the cows, and especially

advised the discontinuance of the use of the milk. The latter part of the advice was immediately complied with, and a few days later I met the son of the owner and asked him if they had yet destroyed the cows. No, he said, we found a better way to get rid of them than that, we sold them to a butcher for 30 dollars. It is presumed that he killed and disposed of the flesh in the city. Who knows how many families ate of this meat. Who knows but my family ate some of it? It is a serious question and one that ought to have the attention of the authorities. I remember the case referred to by Dr. Johnston. It was an old German, who bought a cow which appeared to be very weak, so much so that he had difficulty in getting her home. He used the milk from the cow for 2 or 3 weeks, and previous to its use did not show a trace of tuberculosis. At the end of three or four weeks I was called and found an advanced case of tuberculosis, with the udder involved. Some time afterwards a young man of the family died from tubercular affection of the bladder, following an operation thereon. The old man died later from tuberculosis. This is only one case, where two persons died, from lack of proper municipal inspection. Last summer I had frequent occasion to pass a cow by roadside. Cow was coughing and showed every indication of tuberculosis, although I had never examined it closely. This cow would occasionally break out of her lot and go up to her neighbor's, and mixed with his five Jersey cows. The neighbor objected to this and the cow was kept up. One of the Jerseys contracted tuberculosis later. The milk inspector of Kansas City told me that he could tell any cow having tuberculosis, and when he finds one who doubts his word, he takes along a veterinarian to confirm his diagnosis, which only went to show his ignorance, as skilled veterinarians are unable to diagnose an early case, without the aid of tuberculin. If the public could only see such cases as we see there would be no trouble in having municipal meat and milk inspection.

Dr. Wilson : Do you have much trouble in diagnosing a case of tuberculosis?

Dr. Moore : I thought I made the point clear.

Dr. Wilson : You said you detected it in the udder.

Dr. Moore : I would not risk an opinion, unless in advanced cases.

Dr. Wilson : I think it is pretty hard to tell.

Dr. Moore : Just as I say, it is difficult to tell unless in advanced cases.

THE MONTREAL VETERINARY MEDICAL ASSOCIATION.

The regular meeting of the association was held in the Library of the College, Dec. 1st, the Vice-President, Dr. Baker, occupying the chair.

After the minutes of the last meeting had been read, Mr. Hammond reported the following case :

The subject, a red cocker spaniel, was brought to Mr. Hammond suffering great pain and with a history of having lost weight rapidly. Examination revealed the presence of a movable tumor, which at times rested between the jaws and at others lay upon the trachea, causing extreme dyspnoea on the slightest exertion. Mr. Hammond tried painting the part with the tincture of iodine, persisting in this treatment for a couple of days, but as the animal became worse an operation was suggested, to which the owner readily consented. The field of operation being denuded of hair, was washed with soap and water, and then with a 1-100 formaline solution. An anæsthetic having been given, an incision two inches long was made over the swelling, which entered a large suppurating mass, and in cutting further two more growths were encountered which bled profusely, demanding the use of forceps for its control. The third portion of the tumor wound round the carotid artery. After removing the growths the wound was washed with a 1-20 carbolic solution, then closed with catgut sutures, and dressed with lint saturated with collodion, in which iodoform had been dissolved, the whole being covered with a bandage. Five days after the operation the stitches were removed and the animal sent home in good health, free from pain and inconveniences of any kind. Examination of the tumor showed it to be of a fibrous nature, with a few cysts, in which were found pus and blood clots.

After some discussion on this case the following letter was read from Mr. Henderson, and the lower jaw of a five-year-old ewe was exhibited which had been sent to him with this letter :
Mr. President and Gentlemen :

The case I bring before your notice this evening is one, I think, that is very rarely met with in an ordinary every-day practice and one which I think should merit discussion, although there is no clever diagnosis or even remarkable cure connected with it. The subject is a five-year-old ewe which had been in poor health for some time and had undergone treatment, which was in no way beneficial. The owner being of a sympathetic nature decided to destroy the animal and examine the lower jaw, which was very much swollen. On ex-

amination he found the cavity which you will see in the specimen I have, filled with semi-masticated grass. He decided to forward the specimen from British Columbia for my inspection, adding the above history, also asking for a full report as to the cause, if any, and subsequent treatment, also whether due to any contagious disease which was apt to affect the remainder of his flock. I found on examining specimen an enlargement of both inferior maxillæ, but on the right maxilla the enlargement was more pronounced. There was also a large cavity extending from before inwards and backwards, the teeth being very much displaced, some being totally reversed. The root of the last molar on the right maxilla has protruded through on the internal side and shows a worn appearance. There is also a deterioration from the normal shape on the infero-internal side of right maxilla, the teeth being also displaced on the opposite maxilla and show very uneven wear and a tendency to become like the other side. In concluding, I presume this case has been one of difficult dentition or caused by a blow of some kind received under the jaw.

Mr. Groves then presented his essay on "horse shoeing," beginning by briefly describing the art from its earliest days in the fifth or sixth century B.C., when iron was first used for the purpose of making shoes, down to modern times, when there are a thousand and one patent shoes on the market. The anatomy and physiology of the foot were then minutely and accurately described, after which the manner of shoeing the foot in its normal and diseased conditions was carefully related. The many and varied methods of correcting abnormal gaits in the trotting horse were described, the latter part of the essay proving of especial interest to the members present.

A discussion followed, in which Messrs. Paquin, Stanbridge and Gellatly took an active part. Mr. Groves in proving himself fully able to reply to all questions showed a perfect mastery of his subject.

After a few remarks from the Chairman on shoeing in general, the meeting adjourned.

JAMES MCGREGOR, *Sec.-Treas.*

GENESSEE VALLEY VETERINARY MEDICAL ASSOCIATION.

The January meeting of this association was held Thursday, 12th, at the Livingston Hotel, Rochester, the following members being present: A. Drinkwater, President; A. G. Tegg, Secretary; L. R. Webber, Treasurer; E. Knight, and J. C. McKenzie, all of Rochester; W. G. Dodds, Vice-President, Canandaigua; T. S. Rich, Avon; I. B. French, Honoeys Falls; J. H. Taylor, Henrietta; A. Y. Earl, Palmyra; N. N. Lefler, Geneseo; J. Steiner, Bergen; L. J. Palmer, Sonyea; W. B. Swit-

zer, Williamson; E. D. Burns, Fairport; P. J. Johnson, Sodus; G. C. Kesler, Holly; D. P. Webster, Hilton; E. H. Nodyne, Lyons, and T. Flood, Gorham.

The reports of the officers showed the association to be in a prosperous condition.

Dr. A. L. Shaw, of Albion, was elected to membership.

After certain routine business had been transacted the following directors were elected for the ensuing year: Drs. Drinkwater, A. G. Tegg, Dodds, French, Knight, Webber, Steiner, Burns, Switzer, and Rich. They elected from among their number the following officers: President, Dr. Drinkwater; Vice-President, Dr. Dodds; Secretary, Dr. Knight; Treasurer, Dr. Webber, and the following censors: Drs. A. G. Tegg, French, Steiner, Burns, Switzer, and Rich.

The membership certificate as presented by the committee (Drs. Knight, McKenzie, and Webber) was accepted, and the committee discharged.

A former action of the association was reconsidered, resulting in the adoption of the red instead of the gold seal for the above certificates.

The Secretary was empowered to place the names of each member on the membership certificates and retain the same until ready for delivery.

The subject of illegal practicing was brought up, to which a number of the members made responses.

A motion was made and carried that members send the names of all illegal practitioners in their district to the Secretary, and he to forward a copy of a letter presented by one of the members with the law to such violators.

Papers were presented and read by the following:

Mr. J. B. Y. Warner, (President of the Rochester Humane Society), concerning the work done and good accomplished by his society, concluding by asking our friendship and coöperation in the work.

Dr. Nodyne, "Colic," confining himself most entirely to the spasmodic and flatulent varieties. He was more or less partial against the use of opiates.

Dr. Kesler, "Deadly Nightshade, or Belladonna." He related his personal experience with cattle and sheep that had partaken of the same, with the symptoms as he found them.

Dr. McKenzie having a bad cold, his paper was read by the Secretary: "Influence of Mind on Diseases of the Body, or the Difference between Veterinary and Medical Sciences." Among

other things he dealt with the instinct of our patients against the brain faculties of the human patient, thereby accounting for imaginary diseases and ailments among the latter, and the failure of minute or homeopathic doses on the former.

All the above papers were listened to with great interest, and each brought forth considerable discussion. A vote of thanks was tendered the essayists in each instance.

The next regular meeting will be held some time during the second week in July, 1899.

EMIL KNIGHT, V. M. D., *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was held at the Academy of Medicine, 17 West Forty-third Street, January 4, 1899.

President Dr. Robinson called the meeting to order at 8.30 P. M., when the following members were present: Drs. Ryder, Hanson, MacKellar, Clayton, Bretherton, Bell, J. S. Cattanach, Ackerman, O'Shea and Winslow. Several professional visitors were also present.

The Secretary being absent on account of sickness, Dr. C. E. Clayton was nominated and elected Secretary *pro-tem*. Minutes of previous meeting read and approved.

Board of Censors recommended that Dr. Lamkin's case be laid over until next meeting. It was so ordered.

Dr. Hanson then read a valuable paper entitled "Digitalis, and Its Uses," it being discussed by the members.

The subject of azoturia was then brought up for discussion.

A visiting veterinarian reported a very interesting case of absence of rumination in a cow.

A vote of thanks was extended Dr. Hanson for his paper.

By vote of members present, the Constitution and By-laws were suspended and the Board of Censors were ordered to pass on the names of Dr. A. Liautard for honorary membership and Theo. Keller, graduate of A. V. C., 1892, for active membership. The board reported favorably and they were duly elected.

Dr. MacKellar, at the request of Dr. Gill, he being absent, read a letter from Dr. L. Pearson to Dr. Gill, that, owing to a change in administration of the State of Pennsylvania, he would like a letter written to the Governor of said State recommending Dr. Pearson's reappointment.

Moved by Dr. Mackellar, that Dr. Gill be empowered to draft a letter and forward it to the Secretary, he to send it to the proper parties.

Dr. Hanson moved that a committee of three be appointed to draft resolutions urging the Governor to reappoint Dr. L. Pearson.

The President appointed Drs. Hanson, Mackellar and Ackerman.

The bills of Clark & Zugalla and for rent were ordered paid.
C. E. CLAYTON, D.V.S., *Secretary pro-tem*.

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

The association met in Raleigh, N. C., December 23, 1898, at 12 o'clock, when First Vice-President Dr. Thos. B. Carroll, of Wilmington, called the meeting to order. The election of officers resulted as follows: President, Dr. F. B. Carroll; First Vice-President, Dr. H. G. Bessent; Second Vice-President, Dr. S. H. Lambert; Secretary, Dr. J. W. Petty, and Assistant Secretary and Treasurer, Dr. W. C. McMackin. Board of Examiners: Drs. H. T. Bauer, H. G. Bessent and Cooper Curtice.

Dr. Curtice was elected an active member.

Dr. F. E. White's (Norfolk, Va.) application for membership was read and rejected on account of his non-professional interest in proprietary veterinary medicines.

Adjourned for dinner.

Afternoon session met in usual order at 4 P. M. Drs. Curtice and McMackin were appointed a committee on legislation, and all the members requested to give them their support in having our protection bill with proper regulations for meat and milk inspection passed at this legislature, as most of our towns have petitioned for municipal inspection and we are determined to have our laws of protection or continue to fight for them.

Mrs. Dr. J. W. Petty was elected an honorary member.

A vote of thanks was given the I.O.O.F. for their hall.

Adjourned to meet next summer; time and place left with Secretary.

Dr. McMackin then escorted us to one of the most enjoyable suppers we have ever attended, and every one present will ever remember his hospitality.

I have no record of the proceedings or actions of our members after supper.
J. W. PETTY, *Secretary*.

ONTARIO VETERINARY ASSOCIATION.

The annual meeting was held in the veterinary college, Toronto, Canada, on Friday, December 23, 1898.

The President, Prof. S. Sisson, called the meeting to order at 11.10 A. M., and, after a short address, the minutes of previous meeting were read and confirmed.

Papers and communications received by the Secretary since the last meeting were then read and discussed.

The auditors reported the finances of the association in a healthy condition, there being funds on hand.

The following new members were then duly elected: Mr. H. S. Perley, V. S., of Ottawa; Mr. J. H. George, V. S., of Ingersoll; Mr. P. G. Button, V. S., of Stouffville; Mr. F. Bryant, V. S., of Sunderland; Mr. R. E. Willis, V. S., of Woodbridge.

A resolution of sincere sympathy with Mrs. C. L. Smith in the loss of her husband, Dr. C. L. Smith, V. S., an esteemed member of our association, who has just been called away in the midst of his usefulness, was passed, and the meeting adjourned for lunch.

The meeting was opened again at 1.30 P. M.

The reading and discussion of papers was the first order of business.

Mr. J. W. Wilson read an interesting paper on "Thrombus," which was well discussed.

Mr. Orr Graham read a good paper on "Veterinary Science in Relation to Public Health," and in the course of the discussion that followed, Prof. A. Smith read an extract from Dr. McEachran's interview with Ostertag, the leading authority on meat and milk inspection in Europe.

Professor Sisson, demonstrator of anatomy, read an excellent paper on the "Synovial Membranes of the Tendons." These he demonstrated on the blackboard and also by exhibiting some beautiful specimens from the museum of the Ontario Veterinary College, that were prepared by Mr. J. F. J. Black, a student, who graduated two years ago.

Mr. W. Lawson brought up the subject of better legal protection for the profession in Ontario, and after a long and animated discussion it was ultimately resolved that the following clause should be submitted to the Provincial Parliament, to be inserted in the act of incorporation of the Ontario Veterinary Association: "It shall not be lawful for any person not registered to practice veterinary medicine or surgery, or to perform any surgical operation on animals, for hire, gain, or hope

of reward, and if any person not registered pursuant to this act, for hire, gain, or hope of reward, practices or professes to practice veterinary medicine or surgery, or advertises to give advice in veterinary medicine or surgery, he shall upon a summary conviction thereof before any justice of the peace, for each and every such offence, pay a penalty not exceeding twenty-five dollars, nor less than five dollars." The Secretary was instructed to get a number of these printed, and distribute them to graduates in Ontario, with a request to see the M. P. P. for his locality and induce him to favor the proposed legislation.

The sum of \$25 was appropriated for a medal to be competed for by the students of the Ontario Veterinary College at the examinations in the spring.

The following are the officers of the association for the ensuing year: Prof. S. Sisson, President; Mr. W. J. Wilson, First Vice-President; Mr. J. Blackall, Second Vice-President; Mr. C. H. Sweetapple, Secretary and Treasurer. Directors—Messrs. W. Steele, J. Wagner, G. Hulton, O. Graham, W. Lawson, G. Coulter, F. Bryant and J. H. George. Auditors—Messrs. C. Elliot and J. D. O'Neil. Delegates to the Industrial Fair Association,—Prof. A. Smith and the President; Delegates to the Western Fair Association—Messrs. J. H. Wilson and J. D. O'Neil.

C. H. SWEETAPPLE, V. S., *Secretary-Treasurer*.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

President Clement has announced the appointment of the local committee of arrangements for the New York meeting as follows: H. D. Gill, V. S. (Chairman); George H. Berns, D. V. S., Roscoe R. Bell, D. V. S., E. B. Ackerman, D. V. S., and W. H. Pendry, D. V. S.

Dr. A. Liautard has been duly appointed by President Clement as a delegate to represent the A. V. M. A. at the International Congress of Veterinary Surgeons to be held at Baden-Baden, in August next. It is to be hoped that other delegates may be secured, and our association be represented by several members.

WHY should such a comprehensive association as the New York County have such an uncomprehensive title? Its name implies an association confined to a county, while its by-laws invite them from many.

NEWS AND ITEMS.

THE attendance at the Chicago Veterinary College this session is thirty-five students.

DR. JAMES WILSON, of St. Joseph, Mo., is spending a few weeks at his old home near Toronto, Canada.

VETERINARIAN U. B. MCCURDY, formerly of Topeka, Kans., is now a "Mexican Haciendado," City of Mexico.

DR. JAMES S. CATTANACH, SR., sent in his resignation to the last meeting of the New York County Society.

DR. M. J. TREACY, of Fort Meade, South Dakota, has gone to Cuba with the Eighth U. S. Cavalry, as regimental veterinary surgeon.

DR. TAIT S. BUTLER, of Starkville, Miss., has sold his stock and farm paper and is contemplating entering veterinary practice again.

DR. ELISHU HANSHEW, of Brooklyn, has been bereaved by the loss of his father, which occurred in London in the early part of January.

THE UNITED STATES COLLEGE OF VETERINARY SURGEONS, Washington, D. C., has fourteen students in attendance upon the present session.

DR. H. M. BATCHELDER, who has been in practice at Springfield, Ill., for the past seven years, has been appointed as Assistant Meat Inspector, B. A. I., Omaha, Neb.

ON the Chicago market in January \$320 was commanded twice by high-class draft horses—one a grade Clydesdale from Wisconsin, the other a big gelding of Shire blood from Illinois.

DR. W. N. D. BIRD, formerly stationed at Arkansas City, in the Quarantine service, has been transferred to Nashville, to succeed Dr. T. A. Geddes, who is now stationed in Washington, D. C.

DR. ROBERT W. ELLIS, of New York City, the efficient Secretary of the County Veterinary Association, was ill with the grip for the first week in January, but is attending to his extensive practice again.

DR. GEORGE R. WHITE, of Nashville, who was appointed to a position in the Government meat inspection service, has declined, having found practice so good of late that the official position has lost its temptation.

THE LEAVITT DEHORNER is a scientific instrument whose popularity increases as familiarity with it grows. The Leavitt

Manufacturing Co., of Hammond, Ill., will be glad to furnish those interested with full information.

DR. LIAUTARD was elected an honorary member of the New York County Veterinary Medical Association at its last meeting, "in recognition of his long and successful efforts in behalf of veterinary science in America."

THE TROTTER IN AUSTRIA.—During the year 1898 there was \$214,070 distributed among trotters in the three principal trotting centres of Austria, of which \$123,824 was at Vienna, \$73,662 at Baden and \$6590 at Trieste.

DR. ALEXANDER PLUMMER, formerly of Walla Walla, Washington, who joined the Fourth U. S. Cavalry, and was last reported in the REVIEW as being in charge of Government animals in Honolulu, H. I., is now in Manila.

DRS. GEORGE H. BERNS, of Brooklyn, and W. L. Baker, of Buffalo, have been appointed by the Governor to fill the vacancies on the State Board of Veterinary Medical Examiners caused by the resignations of Drs. Huidekoper and Hinkley.

DR. J. W. PETTY, of Winston, N. C., Secretary of the North Carolina Veterinary Medical Association, was married on Dec. 22 to Miss Eleanor Booker, of Chapel Hill, N. C., and the REVIEW extends its sincere congratulations to the happy couple.

CHARLES S. ATCHISON, D. V. S., assistant to Dr. George H. Berns, of Brooklyn, was recently kicked in the breast while performing an operation in the hospital. It first appeared very serious, but he is at his post again. The injury consisted in the fracture of three ribs at their sternal attachments.

DR. OLOF SCHWARZKOPF, of Flushing, N. Y., who needs no introduction to the veterinary reader, has been secured to conduct "German Review" for the AMERICAN VETERINARY REVIEW, Dr. Bieser having retired from practice on account of ill health and accepted a position in the New York post office.

"PRESCRIPTION WRITING," by Prof. H. D. Hanson, is in course of preparation, but owing to some delinquents who have kindly promised "prescriptions" for the appendix, but who have been slow in sending them, the work has been delayed. The author has received about one-half of the required number, and hopes to receive the remainder shortly.

AT the joint meeting of the Louisiana State Agricultural Society and the Louisiana Stock Breeders' Association, at Shreveport, Jan. 25, 26, and 27, a most interesting and valuable programme was carried out. Dr. W. H. Dalrymple, of Baton Rouge, is Secretary, and a leading spirit. Dr. Tait S. Butler

read a paper entitled "The Fattening of Cattle for Market, a Profitable Industry for the Louisiana Farmer."

MEAT FAMINE IN SOUTH AFRICA.—Washington, D. C., January 14.—Owing to the terrible ravages of the rinderpest and the prolonged drought, South Africa is threatened with a meat famine. During the year ended May 31 last, according to a report to the State Department from United States Consul Stowe, at Cape Town, no less than 1,400,000 head of cattle were lost from these causes, while in the same time the loss of sheep was 2,086,000.

CHICAGO MILK REGULATIONS.—Milk dealers of Chicago in mass meeting recently resolved to work for the defeat of an ordinance introduced in the City Council requiring that all milk shall be sold in bottles with seals showing the quantity of milk, per cent. of fat and when, where and by whom bottled. It is not believed that the measure will become a law. A large committee was appointed to work against the proposed milk trust in this city with which the name of Joseph Leiter has been repeatedly associated.

DR. STEWART MISQUOTED.—A letter from Dr. S. Stewart contains the following paragraph: "I note that Dr. Heck furnished you quite full notes of the St. Joseph meeting of the Missouri Valley Association. As is often the case, even with short-hand notes, one is made to say things quite different from the actual language used. The last paragraph in the January REVIEW, in said discussion, is quite too sarcastic and inconsiderate, and not in my habit of expression. Those present will note the misquotation and doubtless will not take offence."

A PROLIFIC COW.—The following item taken from an English paper is quite interesting, especially since the owner of the subject is the father of G. R. Young, D. V. S., whom all who attended the Omaha meeting of the U. S. V. M. A. remember as a most courteous member of the local arrangements committee: "Mr. Young, of the Poplars, Isle Brewers, has a cow in his possession that has had four calves in one year, two at a birth, one twin, born January 7, 1898, and the second December 31st, Saturday last. All four on the farm in a thriving condition."

ONTARIO VETERINARY COLLEGE.—The Christmas examinations in connection with the above mentioned institution were concluded on Friday, December 23d, when the following gentlemen passed a satisfactory examination and received dip-

lomas : William A. Campbell, Niagara Falls South, Ont.; Arthur E. Chandler, Barberton, Ohio, U. S.; Alex. J. R. Cromwell, Sawyerville, Quebec; William L. Crone, Watford, Ont.; William Cunningham, Ashton, R. I., U. S.; John Hewins, Mountsberg, Ont.; Robert Lawson, Shoal Lake, Man.; Howard S. McFatridge, Halifax, N. S.; Donald H. McKay, Brandon, Man.; Cranston Owens, Utica, N. Y., U. S.; Philip C. Palmer, Bryn Mawr, Penn., U. S.; Harry P. Reed, Hemlock, N. Y., U. S.; Charles B. Shaw, Ashby, Mass., U. S.; Winfield S. Wallace, Vermillion, N. Y., U. S. H. James Elliott passed his primary examination in anatomy.

DID THIS MAN DIE OF ACTINOMYCOSIS?—We have received the following extract from a Chicago paper through the kindness of Inspector Siegmund, of the Bureau of Animal Industry, located in that city : “ Dr. E. M. Hill, one of the physicians who attended George Grafton, the government inspector of cattle at the stock yards, who died of a mysterious disease Sunday morning, is making a scientific examination of the malignant growth which formed on Mr. Grafton’s neck and produced death, after the most intense agony. Dr. Hill is of the opinion that Mr. Grafton’s affection was simply the cattle disease actinomycosis, better known as lumpy jaw, and that it was contracted by the decedent while in the discharge of his duties preventing the slaughter of diseased animals, a position which he had occupied at the stock yards for eight years. Four months ago the disease made its appearance in the formation of a lump under the jaw, which increased in size, attacked the throat, finally prevented the taking of food and at last stopped respiration, choking the patient to death. During this time the knife could not be used nor the disease in any way prevented from taking its course, the fatal result being inevitable almost from the beginning. The medical books relate several instances of men having caught the disease from animals with which they came in contact. Mr. Grafton lived at 667 Washington Boulevard. The remains were buried at St. Joseph, Mich.”

A VALUABLE OLD VETERINARY LIBRARY.—The late Dr. W. H. Harbaugh, of Richmond, Va., was a conscientious and hard student of veterinary literature, and a hobby with him was the collection of rare old volumes treating upon veterinary science. His library was one of the best private collections of books bearing upon the subject in this country, including all modern works, as well as those which he so highly prized for

their antiquity. His widow has disposed of all the standard works, and has left quite a list of those which are only valuable to those who, like her late husband, are collectors of such literature. She has furnished us with the following list: "Treatise on the Parturition of the Cow," by Ed. Skellet; "Dictionary of Farriery and Horsemanship," by J. Hunter, 1796; "Treatise on the Horse," two volumes, by James Lawrence, 1810; book by James Goodwin, veterinary surgeon to George IV. (frontispiece torn, also the binding, otherwise in good order); "New Treatise of Diseases of the Horses," by Wm. Gibson, Vol. II., 1754; "Distemper in the Dog," third edition, by Delabere Blaine, 1803; "History of the Dog," by Martin, 1845; "Stud Farm, Hints on Breeding," by Cecil, 1856; "A Compendium of the Veterinary Art," two volumes, by James White, 1825-1826; "Coleman on the Horse," written by Thomas Nelson, in his own handwriting, London, 1817 (Nelson of Yorktown, Va., of Revolutionary fame); "Treatise of the Horse," by James Clarke, 1791; "Veterinary Surgery," by John Hinds, 1830; "British Cattle," very old, bound, custom, but without date; "Observations on Live Stock," by George Culley, 1794; "Gentleman's Farriery," by J. Bartlett, 1785; "Citizen's and Countrymen's Farrier," by J. Markham, G. Jeffries, and experienced Indians, London, 1803; "The Horse," by William Youatt; "Gentleman's Stable Directory," by William Toplin; "A Treatise on the Diseases incidental to Horses," by J. Clark, 1790; "Mason on Horses," 1811; "Brackett's Farriery," two volumes, 1789; "Veterinary Pocket Manual," by M. La Fosse, 1803; "The Dog," by Ed. Mayhew to Wm. Bishop. Mrs. Harbaugh's address is 26 Old Market, Richmond, Va.

THE POOR PUBLIC.—As if not to be outdone by the "Monumental Liar," quoted in the REVIEW for December, page 639, the following story is taken from an Evansville (Ind.) paper and sent to us by our friend Dr. Mitchell. In this case the operator is a little more modest than the Long Islander—he is probably lying without intending to, for the "vacuum" which he entered was undoubtedly the frontal sinus, while the latter just lied for the love of it, without rhyme or reason. The following account of the procedure occupied a prominent position, with display heading three inches long: "*Young Horse Relieved of Blind Staggers by Trephining—The Prevailing Epidemic Among Equines Leads to Important Experiment—Theory of Ergot Poisoning is Disproved—Story of the Operation.*—Out at Knottsville they seem to have solved the problem of this new

horse trouble that has killed so many animals in Western Kentucky. A great many choice horses have died in Daviess county in the past two months. At first it was generally thought that decayed corn produced ergot causing paralysis of the brain, but several post-mortems have dissipated this theory. Though not in his particular line, Dr. Early has given the subject special attention, and from the several subjects examined concludes that decomposition of the brain, beginning in the left lobe of the brain, constitutes all the trouble. As for the origin of this peculiar malady he is not yet able to say. Mr. J. N. Miles has a valuable young horse that was always healthy until ten days ago, when he suddenly became crazy and blind, as if stricken with paralysis. Drs. Drury and Early both advised trephining the *front skull*, which was promptly done. The skin was cut and laid back from the forehead, and a clean cut hole bored through the skull with an *inch augur*. Inserting the *finger only* a *vacuum could be found*. The skin was then dropped back in place, but left loose so there could be free drainage. The wound bled slightly, but quite a quantity of water and matter were discharged *from the brain*; the animal seemed relieved; he can see pretty well now and is fast improving. Being a young horse the skull is expected to grow together, but for an old horse it might be well to use a silver plate in trephining.

A PENNSYLVANIA HORSE CASE.—Robert F. Thomas vs. Peter German. The plaintiff alleges that he bought on January 14th last from the defendant a horse of a dark brown color, four years old, in Heidelberg township, upon a warranty of the defendant that the horse was sound in every respect with the exception of a splint on one of the animal's front legs. The price was to be \$80, \$50 to be paid after a trial of five days and the balance in two months. Also, that the defendant agreed that if the horse was not as represented by him he should return it and receive back the \$50; that he (the plaintiff) being an inexperienced man told the defendant to tell him the truth, as he did not understand anything about horses; that afterward he was informed the horse was knuckled, and he told the defendant, who said he should take him to Dr. Keck and have him examined, and if Dr. Keck said he was knuckled he should fetch the horse back and receive his \$50; that Dr. Keck informed him the horse was slightly knuckled, but that it might perhaps not injure him. The horse, however, frequently tripped over on his knuckle. That he returned the

horse, which the defendant accepted, but refused to refund the \$50, to recover which he brings this suit. The defendant admitted that he sold the horse under the representations alleged by the plaintiff, but avers that the horse is not knuckled; that the warrant was only for five days' trial; that the horse's legs have been that way ever since he had him in his possession, that he was sound in his legs, but that the horse was a heavy-boned animal and bear-footed, and that was what some people look at as being knuckled. The defendant also showed that Thomas during the first few days he had the horse drove him with a load of slate over rough frozen roads from Slatedale to Slatington and back, and that this might have developed the knuckle. Veterinary surgeons testified that a knuckle is not a sign of unsoundness, and will disappear if the animal is given sufficient rest. Thomas stated that he returned the horse to the defendant, and alleged the latter received him back. This German denied, admitting, however, that he put the horse in his stable, but only from humane motives. After the horse was at his stable for a few days he handed him over to an inn-keeper as a stray animal, and where the latter had kept him for six or eight weeks, and the bill for boarding him amounted to \$55. He was sold at public auction as a stray horse, and bought by the defendant. When the plaintiff, Thomas, who is said to be a local preacher or exhorter, was called to the witness stand, and after being sworn, his counsel asked him, "Where do you live?" Instead of simply answering the question Thomas began a statement to the effect that in all places where he had lived, and in all the transactions he had carried on in all the places where he had been he had always begun any business by first asking guidance from the Lord Jesus. He then fell on his knees in the witness stand, and for a few minutes poured forth a fervent prayer asking the Almighty to assist him in speaking nothing but the truth, and to guide all concerned in the trial to arrive at a just determination. His prayer as taken down by the stenographer was as follows: "O Lord, Thou who rulest over all, and art willing that all shall have justice, we appeal to Thee, in this our trouble, to lend ear and give Thy presence. Guide us and all of us to tell the truth to this honorable court and to this jury; that I bought that dark bay horse from German for \$80; that German said he was solid and sound; that I paid \$50 on him; that the horse was not solid and sound as represented, and that by right and justice this court and jury should compel German to give me

my money back and receive his horse back again, as the horse is now just as I bought him. O Lord, we hold no grudge against German, and we don't want him to have enmity against us; but we want our money back because we are entitled to it. Thou hast said that brethren should dwell together in unity, and it is our desire so to do, but we can't do it if German don't take his horse back and return my \$50. Soften his heart toward us; forgive our enemies; give me a safe deliverance in this trial, and bless this good Democratic judge who has just been indorsed by the solid Republican party of Lehigh county." Thomas went on with his prayer for ten minutes, and at its conclusion the trial gravely proceeded. The jury patiently listened to all the evidence. The parties are farmers near Slatington, but German deals in horses. The jury brought in a verdict for the defendant, and apparently Thomas' prayer had not been answered as he desired, German, the defendant, having shown that the horse was not "knuckled," but was big-boned and sound, as represented. The scene was as impressive as it was unusual. This was the first old-fashioned horse case tried in court since the days of the famous case of Freyman vs. Knecht in 1872, which went to the Supreme Court no less than three times, and which cost the parties litigating for fees and expenses the tidy sum of \$800. The mare in that case was worth \$125, and the plaintiff alleged that Freyman "warranted her all over," but admitted that he noticed the bad condition of one of her eyes. Freyman in that case swore he said "I warrant just while in my stable, and when she is out I don't."—(*Allentown, Pa., Democrat.*)

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Apply C. E. C., 141 West 54th street, New York City.

AMERICAN VETERINARY REVIEW.

MARCH, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLES.

ACTINOMYCOSIS.—In their excellent work on microbial diseases, Profs. Nocard and Leclainche say: "Observation has demonstrated that contagion plays a very restricted part in the etiology of actinomycosis," and the frequency of the appearance of the disease seems to depend merely on an infection due to the introduction into the organisms in some way of the vegetal parasite actinomyces.

Commonly found on vegetables, under a yet undetermined state, actinomyces enter the organisms ordinarily through the anterior digestive organs, tongue, fauces and pharynx, are arrested between the molar teeth, which sometimes are affected with caries, a condition which becomes a predisposing cause. Erosions of mucous membrane, inhalation of the dust loaded with germs, invasion through the udder, some surgical operations, are all to be taken into consideration when the means of infection are examined. The skin itself is not exempt from this possibility of admission to the parasite, and wounds by harness and collars explain sufficiently the frequency of the localization of the disease upon the neck.

At a recent meeting of the Academie de Medecine of Paris, an interesting case of actinomycosis in the human subject was recorded where the point of infection, though cutaneous, is peculiarly rare. The case was that of a young woman who worked in the fields and became affected with actinomycosis of the um-

bilicus by inoculation from the beards of wheat which had penetrated through her open chemise. This mode of intoxication is quite typical for this case, but is it not possible that similar effects could be found among our domestic animals, especially when young and at a time when the cicatrix of the umbilicus is yet incomplete or delicate and likely to be made raw by the slightest excoriation by rubbing against a hard substance, and in that way the nature of the various growths which are sometimes found in that region and which we hear of being removed, be positively established and proved to be actinomycotic.

* * *

SOCIÉTÉ CENTRALE DE MÉDECINE VÉTÉRINAIRE.—This is properly speaking the national representative in France. Organized in 1844, it was recognized as an institution of public usefulness by special governmental legislation in 1878, and, strange as it may seem, although *the* society of France, its membership is comparatively very small. The number of members is fixed as follows: 40 active members (36 at least must be veterinarians), 10 honorary, 6 national associates, 6 foreign associates, 70 national correspondents, 30 foreign correspondents (among whom are found veterinarians from every part of the world)—a total of 162 all told. How different is this society from the national association of the United States, where the number of members is so large.

The meetings of the Société Centrale take place twice a month, in Paris. They are always very complete and of unusual interest. Essentially given to scientific discussions, and, laying aside all subjects of no scientific value to the veterinarian, the society pays no attention to the discussion of other subjects which may be of importance to the profession at large—other associations having charge of those. It is at the meetings of the Société Centrale that all papers, commissions, investigations, etc., are presented, referred to various committees, reported and discussed, and a final commission, known as the Rewarding Commission, recommends the granting of prizes to the most deserving. At the said meeting 4 *large gold*, 10 *sil-*

ver, 5 bronze medals were awarded, also a special prize of 400 francs (\$80).

With the large number of veterinarians that are now found in the United States, and the great number of them who belong to the national association, would it not be an easy matter to do something analogous to what is done by the French society as a means of stimulation to original work, and to add to the pleasant time of the annual meeting by a distribution of prizes? The association could make no better use of its bank account.

* * *

OVoid BACTERIA — PASTEURELLOSIS—SALMONELLOSIS.—Our readers have already been made acquainted with some of the work done by Professor Lignières, and we hope to be able to present them with more, especially with the important discoveries that he has made in his first inquiries into some diseases prevailing among domestic animals in the Argentine Republic.

The study that Professor Lignières has made of the disease of cattle known under the name of "*enteiqué*," of that of sheep called "*Lombrix*," the discovery of their true microbial nature, that of a means of vaccination will prove not only a valuable addition to the history of veterinary pathology and the standing of medical sciences, but will have for the people of the South American Republic the saving of many animals whose loss might prove ruinous to the country.

Enteiqué and *Lombrix* are names which must be now dropped from veterinary nomenclature, and that of Pasteurellosis (bovine or ovine) must be substituted for those two affections. This denomination of Pasteurellosis, given by Professor Lignières to the diseases of the Argentine Republic is not new with him; he had already applied it to typhoid fever, infectious pneumonia, etc., which he gathered under the name of "Equine Pasteurellosis." All these affections being due to microbes which belong to the gender *Pasteurella* of Trevisan, and which, known under the very general name of *ovoid bacteria*, present some general characters of resemblance, viz., "all are discolored by

the gram ; none of them develop fermentation of sugar or liquefy gelatine. They all have to a supreme degree the property of localizing their action on the intestines, or the lung, and give rise easily to lesions of hæmorrhagic septicæmia." For Professor Lignières, the *Pasteurella* is but one species among ovoid bacteria, and differentiates it from the *Salmonella* which imposes the name of *Salmonellosis* for the pneumo-enteritis of swine, whose microbe was so well described by Dr. D. E. Salmon, of Washington.

This distinction of two species of ovoid bacteria implies the probability of others as causes of many other microbial diseases, not yet classified, and opens a larger field of inquiry at the hands of microbiologists, and among them the learned Alfort professor intends to do his share. To facilitate his investigations he has asked us to call upon the veterinarians of the United States for help in the shape of information, lesions, specimens, etc., relating to all ovoid bacteria, which give rise to the phenomena which were known as hæmorrhagic septicæmia. All such addressed to Prof. Lignières, Laboratoire des Haciendados, Santa Fé, 4299, Buenos Ayres, will be thankfully received and credited in his works.

A. L.

VETERINARY LEGISLATION.

While we had hoped to be able to announce in this issue of the REVIEW that the section of the Army bill placing the veterinary surgeon upon the commissioned-officer list, with rank, pay, and authority of a second lieutenant of cavalry, we are yet in that hopeful state of expectancy caused by the entire measure being held up in the Senate. There can be no doubt of the final enactment of that section if the reorganized army bill becomes a law, and we take it that the present temper of the American people will not longer tolerate the farcical standing army of 27,000 men, especially since assuming a position among the Eastern powers. Under the guidance of Chairman Salmon, of the Committee on Army Legislation of the A. V. M. A., the demands of the profession throughout the

country were made known in no uncertain manner ; the members of Congress and Senators were besieged with letters from their veterinary constituents until they were prepared to make an unconditional surrender. As an illustration of the feeling on this point, the editor of the REVIEW received a very satisfactory reply from Senator Platt, of New York, to whom he had written in the interests of the amendment, and in concluding he gave expression to his experience with the members of the profession of the State as follows : " I am quite prepared to accept your statement that your profession is 1000 strong in our State, if I may judge by the number of letters I have lately received of a similar import to yours." Whatever the fate of the Army bill, the veterinarians have won a victory which should encourage them to follow up the advantage and reap the reward of their hard work.

Between seeking new laws and protecting those which have been secured, the veterinary profession of New York State is testing its reputation for vigilance. There are now in committee no less than three bills up to date asking the legislature to re-open the registration books of 1886, and allow them to remain so until Tom, Dick, and Harry can have their names recorded as having practiced the veterinary healing art prior to the date mentioned, without regard to qualification. These bills were introduced in the Assembly and are numbered 197, 243, and 329. They were all referred to the Committee on General Laws, of which Assemblyman Fish is chairman, and the profession of the State has been importuned by the argus-eyed chairman of the Legislative Committee of the State Veterinary Medical Society, Dr. William Henry Kelly, to write to Mr. Fish and protest against the preposterous propositions of which he is custodian. We have no doubt that the Empire State veterinarians have responded in their usual vigorous manner.

We print elsewhere two bills seeking legislation of a different kind. One of these is known as Assembly bill 650, and seeks to establish a State Live Stock Sanitary Commission, to

consist of the Governor *ex-officio*, and five other commissioners, to be appointed by the Governor, as follows : The Commissioner of Agriculture, a practical breeder of live stock, the Secretary of the State Board of Health, and two competent and qualified veterinarians. The bill recites the duties and powers of this commission, and authorizes it to expend a sum not exceeding \$50,000 to carry out the provisions of the Act. There is little doubt that the bill is on the line of advancement, and if properly enforced would result in great good to the live stock interests of the State. It is a vast improvement over one of a similar import introduced a few years ago, but we regret that it does not emanate from within the body of one of the representative veterinary organizations of the State, and have behind it the united profession, who could move upon the law-makers with a solid front and command their attention and support. The bill also omits the important principle of civil service. We fear that such fragmentary attempts will throw distrust upon our demands when seeking legislation upon measures which have the approval of the whole profession.

DR. HOSKINS' CANDIDACY FOR MAYOR OF PHILADELPHIA.

That very versatile veterinarian, our esteemed friend and fellow-worker, Dr. W. Horace Hoskins, editor of the *Journal of Comparative Medicine and Veterinary Archives*, graduate of the American Veterinary College, past-President of the United States Veterinary Medical Association, has just undergone the exciting vicissitudes of a political campaign, having been the standard-bearer of the Democratic party for the exalted position of Mayor of the great city of Philadelphia. Nominated as a Democratic and reform candidate in a city whose overwhelming Republicanism has for years made the position upon the ticket of the opposition an empty honor, we are proud to say that a member of our profession has awakened in the people of the City of Brotherly Love an enthusiasm seldom felt in a minority candidate ; and although he was unable to overcome the great

Republican majority, he inspired a respect and admiration for his many qualities as an ideal citizen and candidate as to add to his reputation and future prospects ; and the search-light of a political campaign has demonstrated more than any circumstance could possibly have done that the modern veterinarian, educated, honest, ambitious, capable, and energetic, is a fitting aspirant for any position in the gift of the American people.

We congratulate Dr. Hoskins upon the character of his ordeal, and, while regretting that he was unable to reach the coveted goal, feel that, having drawn the profession prominently before the country, in a most enviable light, reflected from his own personality, we are fortunate in retaining him as a worker in our ranks. He could and no doubt would have served us in other respects through the opportunity of his position, to the end of securing that ideal system of municipal meat and milk inspection ; but he will be enabled now to achieve more in that direction than formerly through the increased confidence of the public in the profession which he adorns.

ORIGINAL ARTICLES.

VETERINARY HYGIENE AND SANITATION.

BY W. H. DALRYMPLE, M. R. C. V. S., BATON ROUGE, LA.

A Paper read before the Louisiana Farmers' Institutes.

The trite aphorism that "an ounce of prevention is worth a pound of cure," is as true to-day as in any age of past history.

Hygiene is the science ; practical hygiene, the art of preserving health. The immortal Parkes, the founder of modern hygiene, expresses it in this way : Hygiene aims at rendering growth more perfect, decay less rapid, life more vigorous, death more remote. He tells us, that if we had a perfect knowledge of the laws of life and could practically apply this knowledge in a perfect system of hygienic rules, disease would be impossible.

That such a perfect knowledge of these laws is not likely to be obtained, or rather, if obtained, is not likely to be acted upon, we can have no reasonable doubt; the value of health will never be generally appreciated, and the serious losses occasioned by disease seem only too readily effaced from the public mind.

The name hygiene has been adopted from the French, from which language it has been introduced into most modern tongues; it is derived from a Greek word meaning health. Hygeia was the goddess of health.

Writings on health are among the oldest in the world, for the subject has engaged the attention of the profoundest thinkers and the most renowned leaders of men. We have only to point to the elaborate directions of the Mosaic laws for the preservation of health through scrupulous attention to cleanliness, the isolation of the sick, and extreme care in the use of wholesome articles of food and drink. Throughout the whole of their history the Jews enjoyed a remarkable immunity from epidemic diseases, the most of the instances in which such disease occurred being represented as those in which they departed from the law, and doubtless relaxed the wholesome vigilance enjoined by it. In mediæval and modern history they have often, even down to our own time, been spared the ravages of epidemics, when their Christian neighbors were perishing around them. Ignorant superstition often gave rise to the idea that they had poisoned the wells, and they fell victims to the fanaticism of the times. It is highly probable that the periodical cleansing of their dwellings, involved in the thorough search for the leaven which preceded the yearly passover, had a notable influence in preventing that continuous deposition of organic matter, which is no doubt one of the most powerful factors in the production of zymotic disease. On the other hand, the filthy habits of the Christian populations offered a premium to plagues of every kind; for there is no parallel in ancient history to the terrible invasions of disease which from time to time ravaged Europe down to quite recent times.

It is the province of hygiene to seek out and determine the

causes of disease, and to formulate rules for their prevention and removal. It may thus be called also preventive medicine, although this term does not quite express all that must be included. The progress of hygiene, such as it was, rested for many ages upon an empirical basis, and indeed to a large extent this is still the case. Hygiene, then, having for its object the preservation of health, has necessarily an immense scope. In dealing with the subject with regard to animals, we have to take into consideration the air they breathe, the water they drink, the food they are fed on, the stables they occupy, the soils they live on, the harness they wear, the exercise and labor they undergo, their individual care and management, and the prevention and eradication of contagious diseases from which they suffer.

Veterinary sanitation, derived from *sanare*, to heal, is of course embodied in, and forms a part of, the science and art of veterinary hygiene ; and it is to this branch of the subject that we desire to direct special attention.

It is a matter of impossibility for the laymen—and by the word laymen we mean the non-professional man—to make a study and familiarize himself with all the agencies which are at work in the production of disease. This implies a life work ; and in the investigation of the numerous contagious diseases, a thorough familiarity with the life histories of the various pathogenic, or disease-producing bacteria, such as identification, requirements for existence, methods of reproduction, modes of spread, germicidal agents by which they can be destroyed, the varying degrees of tenacity of life with which they are endowed, etc.; these are matters which have to be left to the scientific investigator in the bacteriological world, to whom we owe so much for the great advancement which has been made in recent years in the control and extermination of the many contagious and death-dealing plagues which have for centuries menaced the lives of both our human and animal populations throughout the civilized world. But it is possible for, and a matter of the greatest importance that, our stock owning public should profit by

the labors of the scientist, and should at least read and familiarize themselves with the most salient points connected with those most contagious and fatal diseases of our domestic animals which periodically decimate our work stock, and bring loss, and often ruin to the rural population of our State. It may not be necessary that the planter or farmer should know the minute differential characteristics which distinguish the germ of charbon from that of consumption under the microscope, or their difference of measurement in microns; but he ought to educate himself up to the point of knowing as thoroughly as possible the most practical and intelligent methods to check the disease and prevent its spread; and this can be done at the expense of a very limited amount of effort. Reliable literature bearing upon the subject abounds, and can be had without money and without price. In fact it is forced into his hands, in many instances, in the form of experiment station bulletins, reports issued by the United States Department of Agriculture, and in many of the most reputable of our agricultural journals. Then why should it be that our people remain in such supreme ignorance on matters of such vital importance as the intelligent handling of some of our most deadly animal diseases, although it may be said of them as it is of the poor, "they are always with us"? The only feasible answer to this question that I can think of is: Our people do not read. As we stated at the outset of our paper, the serious losses occasioned by disease seem only too readily effaced from the public mind. When calamity again comes upon us, we are found still in ignorance of the proper methods of attack and defense, and we throw aside our judgment, and open wide our doors to the inroads of the wily quack, charlatan, or fakir, whose opportunity is our adversity. Gentlemen, I think it may be asserted, and with a great amount of truth, that the losses in animal life which have occurred in this State, and in some years it has been incalculable, has been the result of ignorance. If we take for example that dreaded and fatal disease of live stock, charbon, which is at present doing its deadly work in some of the parishes of our State, and which has been known to our peo-

ple for generations, I suppose, yet there exists even to-day the most profound ignorance as to the true cause of the disease, how it is spread, or the most effectual methods to adopt for its prevention or removal, although it is one of the oldest diseases known to medicine, and the more modern measures for successfully combating it have been in operation in sections of this country, and in those parts of the world in which it is of common occurrence, and which have been known to the medical world in all countries in which scientific medicine is practiced, ever since such measures were discovered.

Gentlemen, when we come to discover the immense importance which the control of such a disease as charbon bears to the live stock interests of this State, there is no education—from a pecuniary standpoint—which our people ought to endeavor to master more than that of sanitation in connection with contagious diseases. So long as we neglect this, and with so few educated graduates of veterinary medicine, with diplomas from the leading colleges of the country to help us out, this disease is bound to claim its victims, and create havoc in its wake. So long as ignorance prevails the fakir and the charlatan are going to get in their work at the expense of the credulous stock-owner. During an outbreak of this disease, we have but to pick up almost any of our daily papers to find in eye-catching head-lines, the liniment, or stock food, or condition powder advertised as a positive preventive, or a sure cure for charbon, while at the same time that part of the scientific world who are making special investigations along the line of contagious diseases and their control, are as yet ignorant of any agent that will cure it in its most fatal form, and anything that will prevent it except the strictest sanitary measures, including preventive inoculation. We would like to state in this connection, that there are several individuals who are extremely dangerous during an outbreak of such a dangerous and fatal disease as charbon. The first is the one engaged in the proprietary medicine business, who through ignorance of the true nature of the disease, but on the say-so of some one who has administered or applied his medicine in some

ailment which had some semblance to charbon, or perhaps to a genuine case which would have recovered, as many do towards the end of an outbreak from the virus becoming weakened, advertises his drug, or condition powder, or stock food, as a sure cure, and to which the ignorant and unsuspecting stock owner "catches on." The second, is the would be benefactor, who has been similarly deceived into the belief that he has hit upon a specific which has never failed with him, recommends it to his neighbor in adversity. And the third, is the professional fakir, who neither knows nor cares what the disease is so long as he can rake in the shekels from his credulous and confidence reposing victim.

The first of these is to be excused ; the second to be commended, but the third should be criminally prosecuted. The great danger lies not in any harm that may accrue from the remedy (?) *per se*, but in the liability of the disease to spread, through the absence of any virtue—so far as this disease is concerned—in the quack medicine, and the total neglect of any sanitary measures whatever, which are in reality the only rational means by which to control the malady.

How, then, is the stock-owner to release himself from the thralldom of this ignorance and empiricism? He must avail of every means of educating himself along such lines ; have recourse to the most reliable and authentic literature on the subject, which in this advanced age is quite voluminous ; and, I hope I may be pardoned for this suggestion, give more encouragement to the educated veterinarian to locate in his midst, to render the assistance of valuable experience gained as the result of years of hard and patient study. Then such a disease as charbon would soon be shorn of its terrors, and then would the errors of the "empiric" who served his day and generation as best he could, according to his light, be relegated to the archives of a past age, and the light of reason and intelligence beam forth to obliterate the dark doings of empiricism, superstition and doubt.

So far, then, we have said something about what has been

done ; what is being done, and what should be done. Let us now consider briefly the most practical and rational sanitary measures to be adopted in an outbreak of this fatal disease, charbon, and I specially mention this malady on account of its prevalence in the State, and the loss which is sustained through its ravages.

In the first place, charbon, or anthrax, is produced by its own specific germ, and without the presence of that particular germ there can be no charbon. There can be, and in fact are, several ways by which the disease can be introduced into the living body, but the germ must be there.

Before proceeding further, let us investigate this little life-destroying organism. His technical name is "bacillus anthracis," which simply means the bacillus of anthrax. He belongs to that variety of bacteria known as bacilli or rods, that is, his length exceeds his breadth. He is classed as an aerobe, for the reason that oxygen is absolutely essential to his existence or being. This last is a very important fact from a sanitary standpoint. When a victim of charbon ceases to breathe, the food supply of the bacillus is cut off, and as a consequence he will gradually degenerate and die, provided no atmospheric air, which of course contains oxygen, gets to him. And it has been found impossible to identify one of these germs in the blood of a charbonous carcass 24 to 36 hours after death. This important fact, right here, points to another very important fact ; and it is this : If that carcass is burnt, without any blood or other body discharges being allowed to escape—for it is valuable to know that all discharges issuing from a charbonous cadaver are infected—the last vestige of the contagion from that individual carcass will have been destroyed. But on the other hand, if any of these discharges are permitted to come in contact with the oxygen of the air, being teeming with this organismal life, the latter are revived from spores—which are the seeds of the future bacillus—contaminate the surrounding vegetation, which is in turn eaten by stock, or they are washed by surface water and find their way into streams, canals, bayous, etc., and may be carried

to distant pastures, and in this way the disease is spread and crops up in the most unexpected localities, in the most unaccountable manner without any *apparent* cause. A knowledge of this fact alone might be the means of preventing the spread of the disease in *many* instances. The spore is the most difficult stage of the germ to destroy, and is said to be able to withstand our ordinary climatic influences for years, and is therefore capable of permanently infecting certain sections of the country, such as our own, where conditions seem to be favorable to its development.

With regard to the ways by which the contagion gains access to the circulation of the living animal, we have already alluded to one, viz.: by ingestion or swallowing contaminated food or water. This is known as the intestinal mode of infection, and produces death more rapidly than any of the other modes, for the reason that a greater amount of the infective material is taken into the system. It is said that the digestive juices of the stomach are capable of destroying these organisms, but it is evident that a great many of them do not come in contact with the gastric juice, and therefore escape its destructive action.

The second mode of infection is what is known as the external or cutaneous, and here is where flies, especially the blood-sucking varieties, when in large numbers, play an important part in the spread of charbon. There is an erroneous impression that there is a special charbon fly. This is not so. Any fly may be a charbon fly, so-called, when the disease is in existence, because after sucking the blood of a charbonous animal—which contains myriads of the germs—it simply transmits the disease to the previously healthy animal by inoculation. Death from this mode is not generally so rapid, because the amount of infection is not so great, and the multiplication of the organisms necessarily not so extensive until the later stages, when the whole system is engorged with them.

The third mode is by way of the respiratory apparatus, inhaling the spores in a dried or desiccated condition, and mixed with the atmospheric air. This is the most uncommon method,

and rarely takes place in the lower animals. But in human beings whose occupation leads them to sorting wool, or teezing hair, of animals that have died of the disease, the germs are taken in through the delicate mucous-membrane of the lungs, and in this way gain the general circulation. In this case it is known as "wool-sorters' disease," but of course it is charbon, although it gets its name in this instance from the occupation which renders people in this business so susceptible. Now, although we referred to flies as transmitters of the disease, there are other media through which the external form may be produced. For instance, if a piece of harness soiled with the blood or discharge from the wound of a charbonous animal, is brought in contact with a wound on a healthy one, inoculation may easily take place. Infected stable utensils may also be a ready means of inoculation. An animal with a wounded skin surface, coming in contact with infected grass at pasture, or infected litter in the stable, when lying down to rest, may have the virus transmitted. So that it will be seen how easy and how simple it is to convey the disease.

It may be stated that charbon is not transmitted directly from one animal to another, except in the event of a charbonous wound and a healthy one being brought into actual contact. It is most frequently communicated in an indirect manner, in the ways we have just stated.

No doubt many of you have heard of preventive inoculation in charbon, and some of you may have used it. It will no doubt be interesting to you all to know something about anthrax vaccine, as it is called. The reason that the virulence of charbon cultures is so stable, is due to the presence of the spores which are so tenacious, and little subject to change. When it is desired to attenuate or weaken these cultures it is necessary to begin by preventing the formation of spores. Pasteur succeeded in this by cultivating the charbon bacilli at the temperature of 42 to 43 degrees Centigrade, in the presence of oxygen, when multiplication of the bacilli still continues, but spores are no longer formed. The bacterium which has become asporogenous

at the above named temperature then loses its virulent properties, and finally loses all its vitality. The preparation of the first or weakest lymph requires twenty-four days' exposure; that of the second twelve days; and they are inoculated at an interval of ten to fourteen days. The vaccine then, is the actual virus attenuated or weakened until it has been deprived of its virulence, by exposure to the temperature above stated, in the presence of oxygen. The administration of this vaccine seems to set up a mild form of fever, which in the majority of cases is almost totally unrecognizable, and in so doing confers immunity or non-susceptibility, which lasts for a period of about twelve months.

The main fact to be remembered in the sanitation of this disease, is, that the animal, its discharges, and all its surroundings are, or at all events, ought to be considered, infected. If we bear this strictly in mind, we are more than likely to be guided in the prosecution of the proper sanitary measures by common sense and intelligence.

In the first place, whenever the disease breaks out, the affected animals should be allowed to remain where they are, and, where at all practicable, the healthy ones should be removed to healthy quarters. The reason for this is obvious; we desire to circumscribe the infected area and quarantine it, so to speak. When we remove the sick animals we simply spread the disease by making new centres of the contagion. We say, then, that the diseased animals should be quarantined where they are first found to be affected, if at all possible. All their surroundings, such as litter, excrement, etc., should be burnt. Should the animal succumb to the disease, the carcass should be burnt; and if it is necessary to have it hauled off for that purpose, it should not be dragged along the ground, as is often done, allowing the blood from the abraded skin to contaminate the ground, but the body should be placed on a rough slide of some kind, made impervious, so that no fluid can escape from the cadaver, and when done with, the slide itself can be cremated also. Burying is not so satisfactory, for the reason that some of the infected discharges

may remain round the neighborhood of the grave and cause further trouble, which can be absolutely avoided by the heat produced in the process of cremation.

Those who attend on the sick animals should not be allowed in the neighborhood of the healthy stock, without, at least, making a complete change of clothing. Infection can be, and no doubt often is, carried through neglect of this sanitary observance.

All the surroundings of the diseased animal should be subjected to the strictest disinfection. In fact there is no sanitary detail, however frivolous it may appear, that should not receive the greatest attention if we expect to make a complete removal of the disease.

There is another point with regard to the removal of charbonous carcasses, which demands the most careful attention. We allude to the too common custom of hauling them out to some fence corner and there leaving them exposed. This is one of, if not the surest means of spreading the disease far and wide all over the country. How, it might be inquired, is this to be accounted for? In the simplest manner possible! The body being newly dead, is a mass of living charbon organisms. Gases arising as the product of decomposition, force blood and other fluids through the natural openings on to the ground, which becomes infected with spores, the grass or herbage also shares in the infection, and when grazed over by other animals, they in turn contract the disease. Dogs, foxes, or hogs, devour the charbonous flesh; they also become diseased and become new centres of the malady. The buzzard and the carrion crow, although it is said that birds of prey are to some extent immune from contagious disease, trample over the charbonous blood and offal, while devouring the flesh, and may carry the contagion on their feet all over the country, infecting the pastures as they tread. Rains may wash the diseased discharges from the carelessly exposed carcass into some running water which may be carried for miles, infecting the animals that drink it, or pastures which it may overflow, and communicate the disease to stock

that graze over these pastures. Knowing these facts, then, and considering the lack of information which prevails amongst our people as to the true nature of this disease and the empirical methods which are adopted in its treatment, is it any wonder that charbon spreads? The wonder is that it does not spread more.

The subject is one of vital importance, and every effort should be put forth by citizens to minimize the ravages of this disease to the utmost extent. This can only be done by a well organized system of strict sanitary regulations. The matter is one which affects, not only the individual, but the community, the parish and the State. Control of the disease should be in the hands of the police juries, or Boards of Health, and every right minded citizen should render all the assistance within his power. Those owners who are sceptical—and some are always to be found in a community—should be brought into line and made to conform to the powers that be. For, the scepticism or unreasonableness of one individual, owning an animal affected with charbon, may be the means of counteracting all the good that would otherwise be accomplished.

We have no hesitation in saying that, if our stock-owning public would take the trouble to familiarize themselves with the true nature of the contagious diseases that are so destructive to their live stock interests, and the rational sanitary measures for their prevention and extermination, the time would soon arrive when the appearance of these fatal animal ailments, some of which, like charbon, are transmissible to human beings, would be looked upon, not with the dread which at present accompanies them, but they would be met with the composure which results from an exact and thorough knowledge of the proper methods wherewith to combat them satisfactorily. Then would the “sure preventive and cure” be found, not in the nostrum of the empiric or the charlatan, but in the knowledge and rational application of the principles of modern sanitary science.

ARE you still trying to increase the REVIEW'S circulation?

MUNICIPAL VS. STATE CONTROL OF TUBERCULOSIS.

BY EDWIN B. ACKERMAN, D. V. S., BROOKLYN, NEW YORK CITY.

Read at the December meeting of the Veterinary Medical Association of New York County.

In opening this discussion it will be necessary for me to quote the State laws and municipal ordinances covering this question.

Chapter 661, laws of 1893, was made under an appropriation to kill tubercular cows, but without appraisal of cattle. This was amended by Chapter 664, laws 1894. Under these laws the following regulations are laid down in Sections 60 to 65 of the Public Health Laws, for all counties in the State of New York.

TUBERCULOSIS AND GLANDERS.

- Section 60. Jurisdiction of State Board.
- “ 61. Suppression of tuberculosis.
- “ 62. Destruction of domestic animals affected with tuberculosis or glanders.
- “ 63. Compensation to owners.
- “ 64. Penalties.
- “ 65. Special committee of State Board.

Section 60.—*Jurisdiction of State Board.*—The State Board of Health shall investigate concerning the existence and cause of tuberculosis in cattle and the danger to the public health therefrom, and shall use all reasonable means for averting and suppressing such disease. Such Board may cause all proper information in its possession respecting tuberculosis in cattle to be sent to the local Board of Health nearest to the cattle affected, and may add thereto such useful suggestions as to the removal of the sources of danger therefrom or as to the destruction of such cattle, as to such board may deem proper. The local health authorities shall supply to the State Board of Health like information and suggestions respecting the existence of tuberculosis in cattle.

Section 61.—*Suppression of Tuberculosis.*—Whenever tuberculosis shall be found among cattle in any part of the State, the State Board of Health shall take measures to suppress such disease and prevent the spread thereof, and may order all persons to take such precautions against the spread of such disease as

it may deem necessary or expedient. Such board may call upon any peace officer in the neighborhood of such disease to enforce the orders of such board respecting such disease, and to observe and carry out the rules, orders and instructions which he may receive therefrom. Such board may prescribe regulations for the destruction of cattle affected with tuberculosis, for the proper dispensation of their hides and carcasses and of all objects which might convey the infection or contagion, and for the disinfection of premises, buildings, boats, cars, stables and other objects or places from or by which such infection or contagion might be communicated. The State Board of Health may employ such medical aid, veterinary practitioners and other persons as it may deem necessary, to assist in the inspection, isolation, destruction or disposition of cattle affected with tuberculosis, prescribe rules and regulations for such inspectors and employés, and fix their compensation.

Section 62.—*Destruction of Domestic Animals Affected with Tuberculosis or Glanders.*—Whenever the State Board of Health may deem it necessary for the prevention of the spread of tuberculosis in cattle, such board may cause to be killed, any animal affected thereby, or which, by contact with diseased animals or by exposure or infection or contagion therefrom, such board may determine is liable to contract or communicate such disease; but no such diseased animal shall be so killed on account of tuberculosis unless first examined by a veterinary practitioner in the employ of the State Board of Health, and, if desired by the owner, appraised as hereinafter provided. A local Board of Health shall, pursuant to rules and regulations prescribed by the State Board of Health, cause to be killed, every horse affected with glanders, found within its jurisdiction, but no horse shall be so killed on account of glanders until the value thereof be appraised as hereinafter provided.

Section 63.—*Compensation to Owners.*—To determine the value of such animal, the comptroller shall designate some competent, disinterested person, residing within the judicial district in which such animal may be, to act as appraiser, with an appraiser to be selected by the owner of such animal, who shall promptly fix a time when they shall view such animal and shall proceed to appraise the value thereof. In case of a disagreement between the two appraisers, the third appraiser shall be selected by them, and the estimate of the value of either two of them shall be final. The animal shall be appraised at its sound value, provided, however, no single unregistered animal

shall be appraised at more than sixty dollars. Each appraisal shall be in writing, signed by the appraiser or appraisers agreeing, and shall be delivered by them, if the animal be suspected of tuberculosis, to the veterinary practitioner in charge of such animal, and if the animal be a horse affected with glanders, to the Secretary of the local Board of Health having jurisdiction thereof. Upon the delivery of such appraisal, such animal shall be killed, as hereinbefore provided ; and if it be killed on account of tuberculosis, the veterinary practitioner in charge thereof shall forthwith make a post-mortem examination of the animal, and if it shall be discovered upon such post-mortem examination that the animal was affected by tuberculosis, the owner of the animal shall be entitled to receive one-half of the appraised value ; provided, however, that not more than sixty dollars shall be paid for a diseased registered animal and not more than twenty-five dollars shall be paid for a diseased unregistered animal, but if such examination of the animal killed on account of tuberculosis discloses that the animal was not affected with tuberculosis, the owner shall be entitled to receive the full appraised value. The written appraisal of the value of an animal killed on account of tuberculosis, and a written statement of the result of the post-mortem examination thereof, signed by the veterinary practitioner in charge thereof, shall forthwith be transmitted by such veterinary practitioner to the Secretary of the State Board of Health, who shall file the same in his office. The Secretary of the local Board of Health having jurisdiction in the case of a horse affected with glanders shall, in case such horse is killed, upon receipt of the written appraisal, signed by the appraiser or appraisers, as hereinbefore provided, forthwith make and sign a certificate of such fact, and transmit such appraisal and certificate to the Secretary of the State Board of Health, who shall file the same in his office. Upon receipt from the veterinary practitioner, in the case of an animal killed on account of tuberculosis, or from the Secretary of the local Board of Health having jurisdiction in the case of a horse killed on account of glanders, such Secretary of the State Board of Health shall forthwith make a written certificate, signed by him, setting forth the name and post-office address of the owner of the animal killed, and the amount which such owner is entitled to be paid on account of the killing of such animal, and shall forthwith transmit such certificate to the Comptroller, who shall issue his warrant upon the Treasurer for the payment to such person of the amount so certified, and shall

mail the same to such person at his post-office address as it appears by such certificate. No compensation shall be allowed to any person who shall have willfully concealed the existence of tuberculosis or glanders among his animals, or upon his premises, or who, directly or indirectly, by act or willful neglect, shall have contributed to the spread of such diseases or either of them, and no compensation shall be made under the provisions of this act to any owner, for animals killed unless the animal or animals killed shall have been actually owned and possessed by the owner thereof within this State for a period of three months prior to such condemnation. The appraisers to be appointed as aforesaid, by the Comptroller, shall hold office during the pleasure of the State Board of Health. Each appraiser appointed shall receive as compensation the sum of five dollars per day for each day actually employed, and shall also be paid his actual necessary disbursements, but no claim for services or disbursements shall be allowed or paid unless accompanied by a verified detailed statement thereof.

Section 64.—*Penalties.*—Any person refusing to obey or violating an order, rule or regulation of the State Board of Health respecting tuberculosis in cattle, adopted pursuant to law, shall be liable to a penalty of one hundred dollars, recoverable by the State Board of Health, and applicable to the payment of the expenses of such board in carrying out the provisions in this article.

Section 65. *Special Committee of State Board.*—The State Board of Health may appoint two of its members as a committee, whose particular duties shall be to carry out the provisions of the Public Health Law, relating to tuberculosis in cattle, and such members so appointed shall be entitled to receive a salary of two hundred and fifty dollars per month and any necessary expenses, and they shall hold office for one year. Such committee shall keep a complete record of all work done and submit monthly reports thereof to the State Board of Health.

THE SANITARY ORDINANCES OF THE CITY OF NEW YORK.

Section 31 of the Sanitary Regulations reads as follows: That no cattle shall be killed for human food while in a diseased condition, and all such diseased cattle in the city of New York and the place where found, and their disease shall be at once reported to the Department of Health by the owner or custodian thereof, that the proper order may be made relative thereto, or for the removal thereof from the city.

Section 120. That no diseased cattle or other animals, nor any that have been exposed to any disease that is contagious among such animals shall be brought into the city of New York.

Section 121. That no animal having glanders and farcy, or any contagious disease, or that shall die thereof, shall be removed, disposed of, or exposed in any street or public place, in said city without a written permit from said Board of Health and then only in accordance with the terms of such permit.

Section 185. "That every veterinary surgeon who is called to examine or professionally attend any animal within the city of New York having glanders or farcy or any contagious disease, shall within 24 hours thereafter report in writing to the Board of Health of such city the following facts—viz.: 1st, A statement of the location of such diseased animal; 2d, the name and address of the owner thereof; 3d, the type and character of the disease." This compels the report on all cases of tuberculosis.

Section 59. That no person shall sell, deliver, or offer or have for sale or keep for use, or bring or send to said city any skimmed, watered or adulterated milk, or milk known as "swill milk" or milk from sick or diseased cows.

Sections 75, 76, 77 and 78. *Driving and Leading Cattle through Streets.*—Prohibits the driving or leading of cattle through streets, except under certain conditions (as one person for each animal, animal properly marked for identification for owner and destination by sign or symbol, which must be filed in Department of Health when applying for permit, and no animal to be driven without a permit).

Now, to review the law. By State laws and regulations all parts of the State should and would receive equal inspection and care, and all dairymen would receive proper compensation for their diseased animals; this would be fair and just and the people would be protected at their own expense for a pure, healthy article of food; the farmer would get rid of his diseased cows at a small proportion of the loss, and he would have healthy herds with which to put his produce upon the market. This to be done fair would require an appropriation large enough to carry on the work in all counties, and not in a few favored counties as heretofore.

Under tubercular inspection by city ordinances, as carried

on to-day, everything is done by coercion. A dairyman is notified that on such a day his herd will be tested with tuberculin. If he resists or refuses to have his cows thus tested he is arrested on the charge of keeping cows without a permit, and his stable is immediately quarantined, thus shutting up his business.

You will notice that Section 120 reads that no diseased cattle shall be brought into the city of New York. Thus, if the stable door was kept locked, the dairymen of our city would be protected and not get diseased cows in their herds. Now, then, as the stable door is open and cows with tuberculosis are allowed in, our dairymen get these cows, disease and all, in their dairies. The Health Department then comes along and confiscates them on a tuberculin test under their unlimited power and authority. This is all right as far as it goes, but, under Section 31, if they have a private test made, they or their attending veterinarian are required to report same to the Health Department, and thus they would lose them. If, on the other hand, such cases are not reported and the owner tries to dispose of same, he is confronted by Sections 75 to 78, which prohibits him from leading or driving cows through the streets without a permit from the Health Department. He is thus allowed to buy cows with the disease, but is hampered from disposing of them to any advantage, no matter how slightly the animal is affected.

His loss becomes total, because when the Health Department condemns a cow they take the whole carcass, unless the owner will sign a release, in which case he can have the hides. While the regulations of our Bureau of Animal Industry and the conclusions of our National Veterinary Association are that in localized tuberculosis the meat may be used for food, while generalized tuberculosis should be condemned, and as a good proportion of the cows condemned under the tuberculin test have only a small localized lesion, their carcasses, skins, etc., could be utilized to the owners' advantage.

Of course this test is made largely in dairies for the protection of the milk supply. But under our municipal ordinances

this inspection is confined to the dairies located in the city limits, and only protects the milk supplied by them, and as the city supply from local dairies is less than one-twentieth of the entire quantity used, the protection is a failure to the competitive disadvantage of our local dairies, and to the advantage of suburban or country milkmen, thus making the competition unfair. In other words, we rid the local dairies of tubercular cows, but we do not make our general milk supply any better protected. It, therefore, becomes self-evident and more fitting that this disease should be controlled by the State laws and regulations with the aid and inspection of the various local Health Departments in this way.

To-day I understand that animals coming in this State are tested with the tuberculin test, and many of those that fail to react are shipped to Pennsylvania and Massachusetts because they will not receive animals except they will pass the test, while those cattle they do not want, and those that are not tested at all, are sold in this State. Thus the cow stable door is wide open. So, if the State began at Buffalo and kept tubercular cows out, it would be an excellent start. Then by a district systematic inspection of rural districts our out-of-town dairies supplying milk to our large cities would be controlled; that would be two forms of inspection. Then, as an extra precaution, our cities should establish a quarantine station for all cows shipped into the city, and all cows with State certificate or tag could either be tested or passed, while State cows shipped into the cities could be detained for a test. This would shut the door against the disease all along the line, and then to lock them the city could make the local inspection or test in our city dairies, and there catch anything that had escaped detection or acquired the disease in the dairies, and at the same time our local Health Department should be given the privilege of making inspection on State authority or with a State inspector upon any herd of cattle whose milk was sent to our city.

To conclude, all district inspectors, quarantine inspectors, and local departments of health could report all cases of tuber-

culosis to the State authorities, whether that be the State Board of Health, the Department of Agriculture, Bureau of Animal Industry, Board of Tuberculosis Commissions, or a State Veterinarian, for appraisal, so that owners might be indemnified up to a certain value, for example, as fixed by the present law.

It remains with this body, our State Veterinary Medical Association, the Dairyman's Association of all the counties of Greater New York and our city Department of Health, to use every means in their power, individually and collectively, to see to it that some proper measure is prepared, or law passed, by our next Legislature to rid our herds of tuberculous cows on an equal basis with our rural dairymen in competition with our local dairies, and to the advantage of all our milk, so that we may get a healthy food.

At some future time, gentlemen, I will have something to say on "Hygienic Marketing of Milk."

CALCULI.

BY B. F. KAUPP, D. V. S., INSPECTOR B. A. I., KANSAS CITY, MO.

A Paper read before the Missouri Valley Veterinary Medical Association, Oct. 5, 1898.

I choose for my subject this evening "Calculi," for the reason that we see so many upon post-mortem and find little literature on the subject, and I hope this short discourse will bring out a lengthy discussion.

Calculi are concretions in any part of the animal body, most frequently occurring in organs acting as reservoirs and in the excretory canals, and occurring in animals of all ages. They are met with in the biliary ducts, gall bladder, pancreas, salivary ducts, urinary passages (usually the kidney, bladder and prepuce), and in the digestive tract. They may be owing to deposition of substances from fluid passing along the duct or a product of nutritive irritation.

The information I have collected from the bladder men at the large abattoirs, corroborates the information gained from the

text-books, that urinary calculi are more common in the winter than at any other time of the year, as at this season stock are on dry feed and sometimes have insufficient water. A great or abnormal drain of water from the system, by any other channel than the kidney, lessens the amount of water in the urine and predisposes the production of calculi; as in cases of profuse diarrhœa or in excessive secretion of milk, etc. While the quantity of water in these cases is diminished, the waste of the tissues goes on as before, and if the waste matter is passed out through the kidneys it must necessarily be in a more concentrated form. The kind of water drank by the animal may also be a factor in producing calculi. The concentrated condition of the urine which predisposes these deposits is favored by the quantity of lime salts that may be present in the water taken in. Feed which contains large quantities of phosphate of lime and other mineral substances entering into the composition of calculi, favor the formation of these stones. It is a noted fact that calculi are common among the different animals on limestone soils. Again, when little water is taken into the body and a large amount is expelled by the skin and through the respiratory tract and otherwise, the urine becomes small in quantity, but having to carry out its share of waste material from the tissues and the tissue-forming food, it becomes so charged with solids that it is ready to deposit them on the slightest disturbance; if a little water of such concentrated urine is reabsorbed at any point in the urinary passage, the remainder is no longer able to hold all of the solids in solution and they are at once precipitated, forming a gravel or the commencement of a calculi. Urinary calculi may be found either in the uriniferous tubes, pelvis of the kidney, ureters, the bladder, the urethral canal or in the prepuce. It is said that if a foreign body be introduced into the kidney or bladder that a calculus will form around it, using it as a nucleus; the explanation is that "the foreign body carries with it bacteria which act as a ferment upon the urine and mucus, in addition to the mechanical injury caused by its presence, and if the substance passes through the body it carries

with it blood and lymph derived from the wounded tissues." Mr. Boerhaave experimented by introducing a small round pebble into the bladder of a dog. The wound healed perfectly. A few months later the dog was killed and there was found a calculus of considerable size, the pebble forming the nucleus. These calculi are of different sizes and shapes, as you will see by the specimens I exhibit to-night. They are composed of carbonate of magnesia, carbonate, phosphate and oxalate of lime and the soluble forms of silica, which usually enters the urine as silicate of potash or soda, and sometimes traces of iron and other mineral substances. Urinary calculi are more frequent in the male than in the female, owing to the fact that in this sex the urethral passage is much smaller and longer than in the female.

A small calculus may pass from the kidney to the bladder, where it may form the nucleus of a cystic calculus; or a small stone may pass from the bladder and become lodged in the urethral passage and form the nucleus of a urethral calculus.

Urethral calculi are more frequent in the male sex of cattle and sheep, owing to the S shaped curvature of the penis. The calculus most frequently lodges about the posterior border of the pelvis just above the S shaped curvature of the penis.

Prepuccial calculus in the horse of calcareous formation is rare. This term has sometimes been applied to the sebaceous matter that so commonly accumulates in the blind pouch at the end of the penis, which substance is soft and cheesy-like. Prepuccial calculi in cattle may form on the hairs hanging in a tuft from the prepuce. The calculi are usually phosphatic in composition. The slow expulsion of the urine favors their formation. Prepuccial calculi in swine are frequently found. Some of the calculi have nearly a smooth surface, while others present a crystalized appearance and are very irregular in shape.

Dr. Griemer, in the *Veterinary Journal* in 1896, reports a case of urethral calculus in a horse, calculus weighing $6\frac{1}{4}$ ounces.

Dr. Farmer, in the *VETERINARY REVIEW* in 1895, reports a cystic calculus in an 18-months-old colt; the calculus measured 14 inches in circumference and weighed 27 ounces.

Dr. Smith, in the VETERINARY REVIEW of October, 1895, reports a case in a mule, the calculus measuring two inches in length and three-fourths of an inch in diameter, very rough and of cylinder-like appearance.

Dr. Britton, in the VETERINARY REVIEW of the same date, reports a case in a 13-year-old gelding, the calculus weighing 6 ounces.

Dr. Nesbitt, in the VETERINARY REVIEW, in 1893, reports a case of cystic calculi in the bitch, the calculi numbered 194, varying in size from a pin's head to a buckshot.

Dr. Peabody, in the VETERINARY REVIEW, in 1890, reports a case in a dog, the patient passing 29 small calculi.

Mr. Blaine reports a case in a Newfoundland dog, in which there were 40 or 50 calculi in the bladder.

I have observed three cases of renal calculi ; one in cattle and two in swine.

Case I.—A steer ; weight 1400 pounds ; color, red ; age, four years. The kidney weighed $3\frac{1}{2}$ pounds ; an abnormal deposit of fat surrounded it, which weighed about 50 pounds. Several calculi were found. They were irregular in shape, the largest being the size of a pea.

Case II.—A barrow, weighing 400 pounds, color black, and in good health ; in the left kidney 40 calculi were observed in the uriniferous tubes, which were greatly distended. The calculi were of irregular shape, and varied in size from a pin's head to a large-sized wheat grain.

Case III.—A sow, weighing 300 pounds, and in a healthy condition ; one calculus, which measured three-fourths of an inch in its greatest diameter and one-fourth of an inch in thickness, was found in the pelvis of the kidney.

Calculi in the pancreas and pancreatic duct have been reported. They are usually milk-white in color and small in size.

Inspissated bile is occasionally found in the gall bladder of the hog, but is not common in cattle and sheep. I have observed several cases in the gall bladder of swine, in some of them the mass completely filled the gall bladder and was waxy

in consistency, resembling beeswax and of a dark green color.

Biliary calculi are concretions formed principally of cholesterolin, together with coloring matter from the bile, and are most frequently found in the gall bladder, and sometimes in the bile ducts. The concretions are said to be rare in horses. They are commonly found in cattle, in which I have counted as high as fourteen stones in one bile duct. They are also of frequent occurrence in swine, and are said to be occasionally found in dogs.

The calculi of the stomach and intestines of horses usually occur in those owned by millers, where the dust of the mill, containing grit and other substances, is swept up and fed to them. A piece of mill stone or other substance usually forms the nucleus around which earthy and other matter collects. Some are soft, consisting principally of animal and vegetable matter, others consist of animal and mineral substances, while a few are composed of mineral substances alone. They vary in weight from a few ounces to more than twenty pounds. Calculi in the stomach of dogs are rare, but when found usually consist of phosphate of lime and magnesia intermixed with organic matter and have a smooth surface. In the stomach of cattle we frequently find an interesting calculus of hair formation, commonly called "hair-balls," or technically known as *ægagropilus*; these hair-balls are most commonly found in the autumn and winter. The roughened condition of the tongue of cattle causes a considerable removal of hair while licking themselves or other cattle, which is swallowed, and by the churning motion of the stomach the hair, which is intermixed with food particles and mucus, moulds into a rounded form. After a while the outer surface becomes polished and smooth. They are brown or black in color, and vary in size from a walnut to several pounds. Calculi in the intestines of cattle are neither large, solid, nor frequent, and are usually found in the large intestines.

Salivary calculi are probably the most common in the horse. They may form either in the parotid, sublingual or submax-

illary ducts, and are usually caused by a foreign body working up into the duct, which forms the nucleus, such as hay, corn grain or oat grain, etc. Around the nucleus gather the salts of the saliva, forming rounded or elongated calculi, which may block the duct. There may be several calculi in one duct.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

IMMOBILIZATION IN CASES OF OPEN JOINTS.

By W. F. DERR, V. S., Wooster, Ohio.

In the summer of 1896 a bay horse, six years old, turned out to pasture, got into a barbed-wire fence in such a way that the extensor pedis and metacarpus of the left knee were severed and the joint laid open over its anterior aspect to the extent of three inches.

At the time of my seeing the case it was about ten hours after the accident. He was standing in the stable with limb flexed, so that you could see into the carpal articulation.

A blacksmith being close by, I took the measure of the foot, had a shoe made to extend well back from the heels with holes in, and a brace made to fit the shoe and extend up leg, with a clasp to fit around the arm below the elbow joint. In the meantime, while this was being done, I kept a continuous spray over the wound of carbolic acid and tincture of iodine, one of each to 200 of water, which was kept up for quite a while, dusted the wound with boracic acid and iodoform, and closed with quilled suture. I then applied bandages, from the ankle well up towards the elbow, laying plenty of absorbent cotton over the lacerated parts, fastened the forked brace to the foot and leg, held in place by bandages, and placed the animal in slings, also at the same time I put it under constitutional treatment; had a man stay with the case the first night for fear of trouble with the immovable condition of the limb, also to watch it while put in slings.

Next day the animal was doing well. I thought it best not to disturb it, and therefore left the case alone for two days, at which time there was considerable serum with coagulated synovia making its way through the dressings.

Before taking off the brace and dressings, I prepared myself

with a bucket of carbolic and iodine solution, and as soon as the wound was exposed began to spray the parts thoroughly. The wound was looking fairly well, with the exception of a few places, where it was sloughing some of the lacerated tissues. I closed it again in the same manner as before, left it again for two days, when I repeated the same dressings, the animal being kept in slings for a period of twelve days, when I had him removed from the slings, the wound having granulated enough to close the joint, so as to let the patient lie down.

He made a complete recovery in four weeks, with a slight inability to extend the leg, leaving but a small cicatrix that a few weeks before looked very unfavorable.

RUMENOTOMY—RECOVERY.

By C. H. PEABODY, D. V. S., Charlton City, Mass.

Last August I was called upon by a farmer to see a cow. On my way to the farm I obtained the following history: "The cow is six years old; she calved last June and did all right. Night before last she got into the grain-bin and just stuffed herself with feed, and I think the pesky thing will burst if it is not got out of her soon."

Arriving at the farm, I found a large Ayrshire cow. Her abdomen was distended and hard. By pressing with the hand an indentation was left. She stood with her head extended, tongue protruding, and the saliva was running from her mouth. Respiration was labored and pulse quite thready. There was a well defined, bluish-purple line along the gum at the roots of the teeth. Prognosis was unfavorable.

I placed the cow so as to get at her right side, clipping the hair for a space of about twelve inches in the middle of the triangle formed by the ribs, the transverse processes of the lumbar vertebræ, and the hip-bone.

After washing the parts thoroughly with a solution of carbolic acid, I made an incision about eight inches long through the skin, then through the muscular tissue and the peritoneum. After stopping all hæmorrhage, I then made an incision into the rumen. I brought the edges well out of the incision through the muscular tissues and had them held there by two assistants. I then removed ten pecks of hard, dry meal, oats, barley, corn, and bran.

Having in the meantime found out that the cow had received one quart of linseed oil, one pound of Epsom salts, a quart of soft soap and a yeast cake dissolved in two quarts of water, I

placed in the stomach tincture of opium, \bar{z} ii, tincture of nuxvomica, \bar{z} i, in a pint of whiskey and two quarts of milk.

For sutures for the rumen and peritoneum, I used violin strings soaked in carbolic solution. I closed the incision with what I call the herring-bone stitch. It is a stitch that ties a knot as it is taken, and cannot slip. The muscular tissues and skin I drew together with heavy tape-quill sutures. I dressed it with salicylic ointment, and placed over the incision a pad of oakum saturated with a solution of corrosive sublimate, 1-1000, and held in place by a many-tailed bandage passing around the body.

I saw the animal the next day. Her temperature was 103° F., and her pulse was 60. She drank a little gruel. Fæces rather hard.

The next day her temperature was 102° , pulse 50; fæces soft. She drank a pint of gruel and appeared bright. In forty-eight hours I saw her again. The wound looked well, and after thoroughly cleaning the same, I dressed it as before. I saw her again in three days. She ate a little soft food, drank freely, and gave a little milk. I dressed the wound as before, and removed one suture. Six days passed before I saw her again. In the meantime I had the parts kept well wet with the solution of corrosive sublimate. On my next visit I removed all the sutures and filled what was left of the incision with a preparation composed of iodoform, camphor and Fuller's earth. I left directions that some of this be dusted in three or four times a day, as the occasion required.

In four weeks from the time of operation, the incision was closed and the cow was apparently well.

INTERNAL HÆMORRHAGE.

By HERBERT S. PERLEY, D. V. S. Ottawa, Ont.

The subject, a cross-bred fox and bull terrier, two years old, weighing twenty-seven pounds, was brought to infirmary bleeding from the mouth. The hæmorrhage was not extensive and owner stated the dog had been bleeding for 24 hours. The mouth was thoroughly cleansed with cold water and an examination made for broken teeth or lacerations of tongue or cheeks. A small laceration of the right superior lip was found, from which blood was oozing. As sufficient blood was coming from this to account for what dropped from the mouth, no further examination was made. A tampon of absorbent cotton soaked in tinct. ferri perchlor. was applied, which had the desired effect. The

animal was taken home, but was returned again in a couple of hours, again bleeding. On examination it was found that the blood was coming from the laceration, and also oozing from the edges of the lips, floor and roof of mouth, end of nose, and from several places on external surface of lips and cheeks. No cause was apparent for any, save the one laceration.

This general capillary hæmorrhage was treated with cold, tincture iron, pulv. iron, tannic acid, alum, flour and the actual cautery.

After trying the above agents for a few hours and not being able to arrest the flow of blood, I was at the end of my resources. The animal had grown rapidly weaker; too weak in fact to be accounted for by the loss of blood from the mouth. Legs and ears were cold, and animal hardly able to stand alone.

Upon taking temperature per rectum, it was found to be 99.1° F., and the thermometer was covered with blood. This indicated internal hæmorrhage, and I at once gave a dose of acetate lead, tinct. opii and tinct. ergot. In about thirty seconds animal vomited about four ounces of blood. I tried several times to give internal styptics, but vomition was invariably the result. The animal lingered for several hours and then died.

Post-mortem revealed a large aneurism of the mesenteric artery, and an inflamed condition of about three feet of small intestines, from which there had evidently been hæmorrhage. The entire intestinal tract was almost free from ingesta and filled with blood. This accounted for death, but did not explain the capillary hæmorrhage of the mouth and lips, or why it could not be arrested.

A SUBLINGUAL TUMOR.

BY FRANCIS ABELE, V. S., Quincy, Mass.

In my dog practice, the commonest call is to come right away to see a dog that has been poisoned. The real fact, however, I seldom see. The usual fact is either some bowel disorder, oftenest constipation, or else some form of distemper coming on, most commonly the congestive chill.

One of these "poisoned dogs" had been threatened with death by a neighbor for trespassing, so when the beast came home with his mouth open, druling, and his tongue too big for his mouth, of course poisoning for revenge was suspected. Found under the tongue, or at the frænum, a glairy, smoothly spherical tumor, continuous with the tongue, about its base. Diagnosed inflammation of submaxillary glands due to a blow,

probably a kick. I should have said dog had been absent not much over an hour.

I lanced the tumor in four or five places, bathed with hot water all night, followed by boracic acid wash. Was able to drink next morning and did so ravenously. Ate next day.

Should I call it ranula?

[If the tumor incised was cystic in character it was a "ranula"; if it was solid, it then belonged to some other class of tumor, whose nature could be demonstrated by the microscope. —EDITOR.]

DILATATION OF THE ŒSOPHAGUS IN A STANDARD-BRED WEANLING COLT.

By E. M. NIGHBERT, V. S., Mt. Sterling, Ill.

A standard-bred weanling had been noticed very much emaciated and unthrifty. It was unable to partake of any food except from nursing its mother, which was its only sustenance. It was sold very cheap at public auction and taken away from its mother. After forty-eight hours it was seen to grow weaker.

I was called and found on the left side of the neck a swelling in the situation of the Œsophagus as large as my arm, commencing near the pharynx and increasing in size to opposite the sixth or seventh cervical vertebra. There was a foetid breath and a discharge of partly decomposed food from the nose, which it had tried to swallow.

Upon manipulation the enlargement seemed to be filled with air, and no pain was evinced. I gave an unfavorable prognosis and ordered warm milk given with beef tea occasionally, and a little whiskey, hoping to improve the patient so that I could resort to some sort of an operation.

Death took place thirty-six hours after my examination. It was held for several hours for autopsy, but I was unable to make one on account of other business. I am unable to trace or find out the cause of the trouble in this case, only that two months previous to death the patient was noticed to be dull and unthrifty and partook of no food except from its mother.

A FRACTURE WITHOUT CREPITUS.

By FRANCIS ABELE, V. S., Quincy, Mass.

Was called to a horse that was on a four-horse team, used in the granite business. One of the heavy blocks fell off and onto him. When he was extricated from the resulting tangle it was found that he walked on three legs, the off front one being com-

pletely displaced at the fetlock joint, the end of the metacarpal protruding. A man with a pistol was sent for. Before he arrived, however, the horse had tried his weight on it, with the result that the displacement was reduced. I could perceive no crepitus; could flex the joint; had some synovitis. I suspected some severe complication, as careful soaking in hot corrosive failed to act at all. Patient ate well, got up and down, but with difficulty (building too weak to support slings). As trouble did not respond to treatment, killed him. He showed transverse fracture of metacarpus into joint. Can't understand now why I had not detected crepitus. Should say that personally I did not see the protruding bone, nor post-mortem.

MELANOSIS.

By W. F. DERR, V. S., Wooster, Ohio.

On May 29, 1897, I was consulted about a grey mare, with an enlargement on the middle of the right shoulder, said by the owner to be the result of the collar, from hard plowing during the fall of 1896.

The animal was a grey Norman, eight years old; the enlargement was non-inflammatory and painless to the touch; could do work of any kind without any inconvenience. At this time the enlargement was about the size of a base-ball, but more flattened. The owner informed me that if she rested a week it would be reduced in size considerably. My friend, Dr. J. D. Fair, being at my place on a visit at the time, advised a seton drawn through it and saturated with tincture of cantharides, which was done.

On June 5 I had a telephone from the owner that the enlargement was terribly swollen, extending down over the pectoral region and back to the elbow, with no discharge from the seton whatever. I advised some internal treatment, with warm fomentations over the parts and later a warm poultice to be placed over the same. On the 8th I made a visit to the case. The enlargement was very unsightly, the tumefaction extending along the abdomen to the mammæ, with a great deal of constitutional disturbance, the animal being down and unable to rise without assistance. After getting her on her feet I made an incision into the tumor to the depth of about four or five inches, from which escaped a very black and tarry fluid, and from the character of it I made up my mind that I had a case of melanosis, and so informed the owner, and gave an unfavorable prognosis. After due consideration the owner insisted on my

treating the case a few days longer. I scarified the swellings along the abdomen and gave laxatives, febrifuges, and diuretics, with hot fomentations over the shoulder. On the 12th I again saw her, and in assisting her to rise I found that she had but little control of her posterior extremities.

I made a rectal examination and found a large mass extending around and posterior of the kidneys, painless on pressure, which I diagnosed as a melanotic tumor of large dimensions.

I advised the destruction of the animal, but the owner thought otherwise, and wanted treatment continued, which I did for several days longer, when he destroyed her. The post-mortem was made by the owner, and I can only give his description of the case. He brought me the tumor that he took out of the abdomen; also the one out of the shoulder, the latter being a conglomeration of tumors, the whole mass weighing 24 lbs. This animal was raised and owned by this man up to the time of her death, and never had there been any tumor seen by him until the one on the shoulder.

The question is, did the insertion of the seton in the shoulder stimulate the growth of these tumors to such an extent as to cause paralysis of the posterior extremities?

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By PROF. OLOF SCHWARZKOPF, Flushing, New York.

STATISTICS OF RESULTS FROM SCHMIDT'S TREATMENT FOR PARTURIENT PARESIS.—District Veterinarian Neverman presents in the *Berliner Thierärztliche Wochenschrift* (No. I., 1899) a statistical summary of Schmidt's treatment of milk fever, collected from the reports of 41 veterinarians. Of 358 cases, 296 were cured, 25 died, and 37 were slaughtered before recovery or death. The percentage is thus as follows: Recovery, 82.68 per cent.; death, 6.98 per cent.; slaughter, 10.33 per cent. Recovery takes place at varying times, but 55.5 per cent. of the animals treated stood up within ten hours after the injection. The milk secretion remains decreased during five to eight days after injection, but the milk itself appears normal in color, smell and test. Only two cases of mastitis were reported as following the treatment, but diarrhœa, often quite profuse, and a slimy nasal discharge, have been reported in a majority of cases following the iodide of potassium treatment.

Neverman concludes by saying that Schmidt's treatment will prove to be a boon to country veterinarians and agriculture at large.

FOOT-AND-MOUTH DISEASE SERUM.—According to reports of several district veterinarians the new agent "seraphthin," prepared by the Hochtco Farbwerke for the immunization of animals against foot-and-mouth disease, has not proven a reliable protection lymph.

CHEMICAL REACTION OF THE MEAT OF SLAUGHTERED ANIMALS.—Edelman and Mack have undertaken a series of experiments to determine the normal chemical reaction of the meat of slaughtered animals. Of 1876 carcasses, so tested, 8.6 per cent. showed an alkaline reaction, traceable to various diseases, injuries from transport, weakness of heart with insufficient bleeding, emaciation, hog-cholera, etc. A very fat hog which appeared healthy, and which during a rather scanty bleeding, was lying on the left side, showed an alkaline reaction of the meat of the left side and an acid reaction on the right side. The acid reaction of healthy meat was found to take place from three to six hours after slaughtering, but even here considerable variations have been noticed. The experiments will be continued to determine, if possible, whether a simple test with litmus paper can be safely used to discriminate between wholesome and unwholesome meat in the market halls.

BELGIAN REVIEW.

MAMMARY ACTINOMYCOSIS OF SWINE [*By J. Hamoir*].—In this animal, though muscles and tonsils are frequently the seat of actinomycotic growths, the mammaræ are still more commonly affected, where they present themselves under peculiar conditions. Ordinarily located in the median mammaræ, they begin by an induration at the basis of the teat, gradually increasing and soon reaching the size of the fist, spreading to the surrounding glands without contracting adhesion to the contiguous ventral skin. The growth is then bosselated, lobulated, covered with varicous skin and has the consistency of a fibroma. When ulcerated, the ulcer is fungous, of various sizes with well defined borders. The tumor is not painful and its presence does not seem to interfere with the general health. It is not very vascular and is easily enucleated. The treatment is surgical, and if properly done there is but little danger of return. It consists in the extirpation of the tumor by exposure of the growth through

an incision *involving the skin only*, and an enucleation, carefully avoiding all lesion of the tissue of the growth for fear of inoculating the field of operation and causing a return of the growth. It is also necessary to remove the glands immediately in front and behind the diseased one. The wound heals readily. For the author the surgical treatment, from the economical point of view, is preferable to that by iodides.--(*Annales de Med. Vet.*)

DIRECT CONTENTION OF FRACTURES IN DOMESTICATED ANIMALS [*By Mr. J. de Luyck*].—After a few remarks upon the value of the means used in the treatment of fractures and their division into indirect and direct, basing his experiments on the result already obtained in human surgery, and on the innocuity of the presence of neutral and immobile foreign bodies in tissues, the author relates the result of four observations, in which he had recourse in two cases to the application, on the external surface of the fragments of bone, brought in perfect adaptation, of two metallic splints, held in place by screws running through the bone from one splint to the other; in two other cases, he strengthened the adaptation and the position of the bone by placing into the medullary cavity a silver tube extending into it above and below the seat of the fracture. With these last two cases Mr. de Luyck applied only one metallic plate on the outside surface of the bone. The external wound was treated antiseptically. In the first case it was a cat, which two weeks after was able to rest on his leg and in four weeks was scarcely lame. The fourth case was an old, worn-out horse, in which one of the hind cannons had been experimentally broken. After some five weeks' treatment he was destroyed. In the second and third experiments, he used dogs. With them, a silver tube had been introduced into the medullary canal of the bone and a single metallic plate screwed on one side of the external face of the bone. Both of these animals recovered. From the results of these two successful experiments the author concludes that (1) it is possible to have a foreign neutral and immovable body in the medullary canal of long bones; (2) on the external face of the periosteum of those same bones; (3) even in their thickness, and (4) that it is possible to open a direct communication between the medullary canal of long bones and the outside atmosphere. He advises either of these means for large animals: (1) Two steel splints, of proper shape and size, applied on the periosteum and held solidly in place by four bolts, two for each fragment; (2) a cylinder, made of the form and size of the medullary cavity and one sus-periostic

splint. The cylinder should have two taped holes, and the splint two plain and corresponding to these. The cylinder introduced into the medullary canal, the splint should be put in place and both held in place by screws running through them and the bone also.—(*Annales de Med. Vet.*)

QUEER SEQUELÆ OF A PRICK IN THE FOOT [*By Mr. Conreur*].—As remarked by the author, the interest of this case rests principally on the pathogeny connected with it. It is that of a horse that has been lame for some time, though not enough to be unable to work, but which became so suddenly as to be almost disabled. At the examination of the foot, increased sensibility is found on the inside of the foot, only on a limited surface, and on paring the sole the opening of a tract, like that formed by the prick of a nail, is found and from which a dark greyish fluid is escaping. The sole is pared thin, flaxseed poultices are applied and five days after the horse returns to his work. Two weeks later, the lameness has returned, the symptoms of the foot are the same as on the previous occasions and Mr. Conreur supposing that there is a little splint of necrotic bone proceeds to extirpate it. But instead of the bone he finds a white mass, round in shape, beanlike in appearance. Pressure on that mass gives rise to great pain; its extraction is followed by an abundant hæmorrhage. This tumor is white, semi-transparent and hard. The widest part is opaque and has a greyish centre. Cut into, it shows a white powder, surrounding a black point, a small piece of iron. To the microscope, the tumor is formed of horny, epithelial cells, without pigment. Recovery occurred rapidly afterwards.—(*Annales de Med. Vet.*)

VETERINARY LEGISLATION IN NEW YORK.

Mr. E. C. Brennan introduced in the New York Assembly on February 6th the following bill (No. 650), which was read once and referred to the Committee on Public Health:

AN ACT

IN RELATION TO THE ESTABLISHMENT OF A STATE LIVE STOCK SANITARY COMMISSION, AND TO PROVIDE FOR THE CONTROL AND SUPPRESSION OF TUBERCULOSIS AND OTHER DANGEROUS DISEASES OF DOMESTIC ANIMALS.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. There shall be established as part of the State Government a commission to be known as the "State Live

Stock Sanitary Commission," which commission shall consist of the Governor of the State ex-officio, and five other commissioners, to be appointed by the Governor by and with the advice and consent of the Senate, as follows: The Commissioner of Agriculture, a practical breeder of live stock, and the Secretary of the State Board of Health, and two competent and qualified veterinarians, who are graduates in good standing of some recognized and reputable veterinary college. Each commissioner shall be appointed for a term of four years and shall be subject to removal by the Governor for incompetency or neglect of duty.

SEC. 2. It shall be the duty of the commission to protect the health of the domestic animals of the State; to determine and employ the most efficient and practical means for the suppression, control or eradication of any dangerous, contagious or infectious disease among the domestic animals, and especially of tuberculosis, and for these purposes it is hereby authorized and empowered to inspect or cause to be inspected by their duly authorized agent or agents, all milch cows, cattle or other domestic animals, and the same to be re-inspected from time to time as may be deemed necessary, and to establish, maintain, enforce and regulate such quarantine and other measures relating to the movements and care of animals and their products, especially that of milch cows, to cause the disinfection of suspected localities, all premises, buildings, railroad cars, vessels and other objects from or by means of which infection or contagion may take place or be conveyed, and shall order or cause to be ordered the destruction of any or all animals as it may deem necessary.

SEC. 3. Whenever it shall be adjudged necessary to the interest of the live stock industry of this State or to the welfare of the public to kill any animal or animals suffering from some contagious or infectious disease, especially tuberculosis, or any animal or animals likely to carry contagion, and an agreement cannot be made with the owner or owners thereof as to their value, two appraisers shall be appointed, one by the owner or owners of the animal or animals, one by the commission or a commissioner, and, in case of a disagreement, a third by the two, who shall under oath or affirmation appraise the animal or animals at their actual value at the time of the appraisal, and the owner shall be paid one-half of said appraisal; provided, that no such appraisal shall exceed fifty-five dollars for any single head of cattle unregistered animal; or seventy-

five dollars for any single head of cattle registered, and forty dollars for a single glandered horse or mule; and further, provided, that no animal or animals found to be infected with any contagious or infectious disease within ninety days after having been brought from another State into the State of New York, shall be paid for, but, notwithstanding, the commission shall be authorized to slaughter or cause to be slaughtered such animal or animals if in their judgment such a course is necessary to the interests of the live stock industry or to the welfare of the public; and provided, that in case it shall be found that the autopsy does not show or produce evidence of any contagious or infectious disease at the time of slaughtering, and were so slaughtered or destroyed by order of the commission, commissioner, or their duly authorized agent, the entire appraised value of the animal or animals shall be paid to the owner or owners.

SEC. 4. The commission or commissioner, or their duly authorized agent, shall have the right to suppress the use or sale of any milk, product or products, of any animal or animals whatsoever, whenever they or he should deem it necessary for the welfare of the public, by reason or otherwise of any contagious or infectious disease existing, or reasonably thought to be existing in any animal or animals that produce milk or any product sold for food, whether it be the product of, or the animal itself; when such suppression is so enforced, especially by reason of tuberculosis in milch cows, the commission, commissioner, or their agent, shall send notice to such local Board of Health in the locality that such supply is used, of such suppression, and shall cause a notification to be sent to such Boards of Health as soon as such suppression or quarantine has been removed.

SEC. 5. The commission, or any commissioner, or any of their duly authorized agents, shall at any and all times have the right to enter any premises, farms, fields, pens, abattoirs, slaughter-houses, buildings, cars or vessels, where any domestic animal is at the time quartered, or wherever the carcass of one may be, for the purpose of examining it in any way that may be deemed necessary to determine whether they are or were the subjects of any contagious or infectious disease, and may call upon the sheriff or deputy sheriff, constable or peace officer of any county wherein such action is necessary to carry out and enforce the provisions of any notice, order or regulation which may be made for the purpose of carrying out the provisions of this act, and all such sheriffs or deputy sheriffs, constables or peace offi-

cers shall obey and observe any and all such orders and instructions which they may receive from the commission or commissioner, or duly authorized agent, in the premises.

SEC. 6. Any person violating, disobeying or disregarding the terms of any notice, order or regulation issued or prescribed by the commission, commissioner, or duly authorized agent under this act, in destroying or defacing any mark or sign upon any animal that may be placed thereon by the commission, the commissioner, or their duly authorized agent or caused by them to be placed thereon for the purpose of identification of such animal, shall forfeit to the people of the State the sum of one hundred dollars for every such violation, or in default of such payment may be convicted by the local police justice for a term not more than thirty days in the county jail for each and every violation.

SEC. 7. The commission is hereby empowered to employ such assistants and agents and to purchase such supplies and materials as may be necessary in carrying out the provisions of this act, and to administer oaths or affirmations to the appraisers appointed under this act.

SEC. 8. The inspectors of the bureau of animal industry of the United States shall have the right of inspection, quarantine and condemnation of animals affected with any contagious, infectious or communicable disease, or suspected to be affected with such diseases, or that may have been exposed to any such diseases and for such purpose they may enter upon any grounds or premises, they may call the sheriffs, constables and peace officers to assist them in the discharge of their duties in carrying out the provisions of any such act, and all sheriffs, constables and peace officers shall assist such inspectors when so requested, and such inspectors shall have the same powers and protection as peace officers while employed in the discharge of their duties. The State shall not be liable for any damages or expenses caused or made by such inspectors.

SEC. 9. The compensation of the commissioners shall be fixed each year by the governor.

SEC. 10. All expenses incurred by the State Live Stock Sanitary Commission in carrying out the provisions of this act and in performing the duties hereby devolved upon it shall after approval in writing by the Governor and President of the State Live Stock Sanitary Commission, be audited by the comptroller and the sum not exceeding fifty thousand dollars, or as much thereof as may be necessary is hereby appropriated out of any

money in the treasury not otherwise appropriated for carrying out the provisions of this act.

SEC. 11. Article four of the agricultural law of the State of New York, is hereby and is repealed, and all acts or parts of acts that may conflict with this act or the enforcement of or carrying out of any of the provisions of this act are hereby and are repealed.

SEC. 12. This act shall go into effect within thirty days after its passage, within which time the commission shall be appointed and confirmed as hereinbefore provided.

The following bill (No. 100) was introduced in the Senate by Mr. Willis, read twice, and ordered printed, and when printed to be committed to the committee on public health :

AN ACT

TO PREVENT THE INTRODUCTION OF TUBERCULOSIS INTO THE DAIRY AND OTHER HERDS OF CATTLE IN THE STATE OF NEW YORK.

The People of the State of New York, represented in Senate and Assembly, do enact as follows :

SECTION 1. All bovine animals imported into the State of New York, excepting fat cattle for immediate slaughter, must be accompanied by the certificate of an approved veterinarian, official or otherwise, stating marks for the identification of the individual animals, and giving the temperature records, of a tuberculin test made in the course of the thirty days immediately preceding the importation. The State official who shall be in charge of tuberculosis in cattle at the time of the introduction of such animals, shall furnish a written permit for the importation of such cattle, when he shall have assured himself that the certificate applies to the cattle in question, and that it has been furnished by a veterinarian of character and ability, and of approved experience in the use of the tuberculin test.

SEC. 2. All railroad, steamboat, ferryboat and other carrying companies are forbidden to receive store cattle in any other State, for transportation to any destination within the State of New York unless such cattle are accompanied by the required certificate and by the written permit of the New York State official charged with the duty of furnishing the same.

SEC. 3. In case store cattle shall have been imported into the State without the required certificate and permit provided for in section one of this act, it shall be the duty of the State official, in charge of bovine tuberculosis, to cause all such ani-

imals to be subjected to the tuberculin test, and to see that all such animals giving indications of tuberculosis are slaughtered. No indemnity shall be paid by the State to the owners for any tuberculosis cattle that have been brought into the State, after the passage of this act, without a certificate of having successfully stood the tuberculin test.

SEC. 4. Any person or persons violating this act shall be guilty of a misdemeanor and, on conviction thereof, shall be punished by a fine of not less than twenty-five dollars nor more than two hundred dollars for every such offence, or by imprisonment for not less than one month nor more than six months or by both such fine and imprisonment, and for a second offence by an imprisonment for not less than six months and not more than one year.

SEC. 5. This act shall take effect immediately.

[*From the Breeder's Gazette.*]

TREATMENT OF SWINE DISEASES.

By D. E. SALMON, D. V. M., Chief of the Bureau of Animal Industry.

It has long been known that when persons or animals have suffered from an attack of contagious disease and recovered they resist that particular contagion for the remainder of their lives, even though they are exposed to it. There are exceptions to this rule, but they are not sufficiently numerous to affect the principle. The animals which have recovered from such a disease and which consequently have the power to resist it are said to be immune; those which have not had an attack but which are liable to be affected when exposed are said to be susceptible.

The subject of immunity has received many years of patient study from the ablest scientists in the world, because it has been clear that a thorough knowledge of this condition would be a long step toward the control of the greater part of the contagious diseases. This study has shown that there are different degrees of immunity, and that when an animal has had an attack of a contagious disease and recovered, although it is immune to a small dose of that contagion, if the dose is sufficiently increased it will have a second attack of the same disease. When we say an animal is immune, therefore, we ordinarily mean that it is capable of resisting the quantity of contagion which is liable to penetrate into its body under the usual conditions of life.

The production of a certain degree of immunity by inoculation and by vaccination has been a favorite method of combating several of the destructive contagious diseases of animals and has been extensively tried with swine diseases, as was explained in the preceding article. In experimenting with inoculation it was discovered that a comparatively small quantity of the blood of an immune animal, if injected into the tissues of a susceptible animal, would produce immunity in the latter and would also, in case the animal was suffering from the disease, have a curative effect.

This was a most wonderful and unexpected discovery, which has been particularly utilized for the cure and prevention of diphtheria in the human species. It is a principle capable of quite general application, however, and seems particularly useful for the control of the prevailing outbreaks of swine diseases. It has the great advantage over inoculation and vaccination in the field that it does not distribute the germs and consequently cannot produce outbreaks of disease nor can it injure the animal in any manner.

In practice it is found convenient to draw the blood of the immune animal, allow it to clot or coagulate, and then to remove the liquid portion of the serum for use. The application of this liquid to the prevention or cure of disease is, therefore, called the serum treatment.

In producing this serum on a large scale it is necessary to use large animals which can furnish a considerable quantity of blood at one time without seriously affecting their condition. For this reason horses and cattle are favorite animals with which to produce such serums. To make a horse immune to hog cholera or swine plague it is first inoculated with a very small dose of the germs of one of these diseases. This inoculation is followed by the symptoms of depression and fever, which vary in intensity and duration according to the size of the dose and the susceptibility of the animal. After the horse has entirely recovered from the effects of this inoculation it has acquired a slight degree of immunity, but its blood does not yet show any appreciable immunizing or curative properties. To develop such properties the animal must be inoculated again and again, with an ever-increasing dose of virus until the highest practicable degree of immunity is obtained. After each inoculation the horse must be allowed to recover entirely from its effects before another inoculation is practiced.

It requires from three to four months of the most careful

treatment to raise the horse's immunity to such a degree that the serum is valuable for the treatment of hogs. Some horses will never yield good serum; others may die from the effects of the virus before they have reached the proper stage of immunity. With skillful management, however, a large proportion of the horses can be made to yield a good serum after three to five months' treatment.

After the horse has been given a proper degree of immunity blood may be drawn from it every five or six weeks; but it will not continue to yield a high quality of serum unless the inoculation with large doses of virus is repeated from time to time.

It is thus seen that the production of serum is a difficult matter, and one which requires the constant services of experts. The virus for the inoculation of the horse must be properly prepared and must be pure. This demands the skill of an experienced bacteriologist. The virus must be administered in proper doses and with proper intervals, taking into consideration the condition of the horse to be operated upon. This can only be determined by the experience and judgment of the operator. Finally the blood must be drawn without permanently injuring the veins, and without allowing it to become contaminated with atmospheric or other germs.

If the horse has been treated with hog-cholera virus, its serum will be efficacious for the treatment and prevention of hog-cholera, but will have no effect upon swine plague, and *vice versa*. Now, as we are liable to encounter either one or the other of these two diseases, and frequently find both diseases in the same herd and affecting the same animal, and as it is difficult to distinguish with certainty between these diseases without resorting to tedious bacteriological methods, it is essential that any remedy shall have a favorable effect upon both diseases. To accomplish this object we have used a mixed serum—that is, a mixture of serum from a horse made immune to hog-cholera with other serum from a horse made immune to swine plague. Or a single horse may be made immune to both diseases and will then furnish a serum curative for both diseases. The serum obtained in this way, if carefully bottled for use, will keep for a considerable time. The dose to be used varies from two to five drams, according to the size of the hog. It is injected under the skin with a hypodermic syringe, and one dose is all that is ordinarily given.

As has already been stated, this serum produces immunity in well hogs and has a curative effect on those which are sick.

The duration of the immunity has not been accurately determined, but it appears to be sufficient to carry the animals through the season.

The serum has been used entirely in herds in which the disease had already appeared: In some cases only a few animals in large herds had shown the disease, while in other cases a considerable proportion of the herd was dead before the remedy was applied. As would naturally be expected under such circumstances the results of the treatment vary considerably in different herds. In some large herds 95 to 99 per cent. have been saved, while in others not more than 40 to 50 per cent. were saved. Altogether about 2000 hogs in diseased herds have been treated, and of these about 80 per cent. lived.

In neighboring herds similarly affected and which could not be treated on account of an insufficient supply of serum, about 85 per cent. of the animals in the diseased herds died. This indicates that the difference between a death rate of 20 per cent. in the treated herds and of 85 per cent. in the herds not treated represents the saving to be attributed to the serum treatment. The hogs which recover under this treatment thrive and fatten well. A form of treatment which is easily and cheaply applied and which gives such results as this can only be regarded as a great success and as solving, from the point of view of the scientific investigator, the question of what to do with hog cholera. There are still important questions as to the practical application of the treatment which will be considered in a subsequent communication.

DANISH MODE OF CASTING.

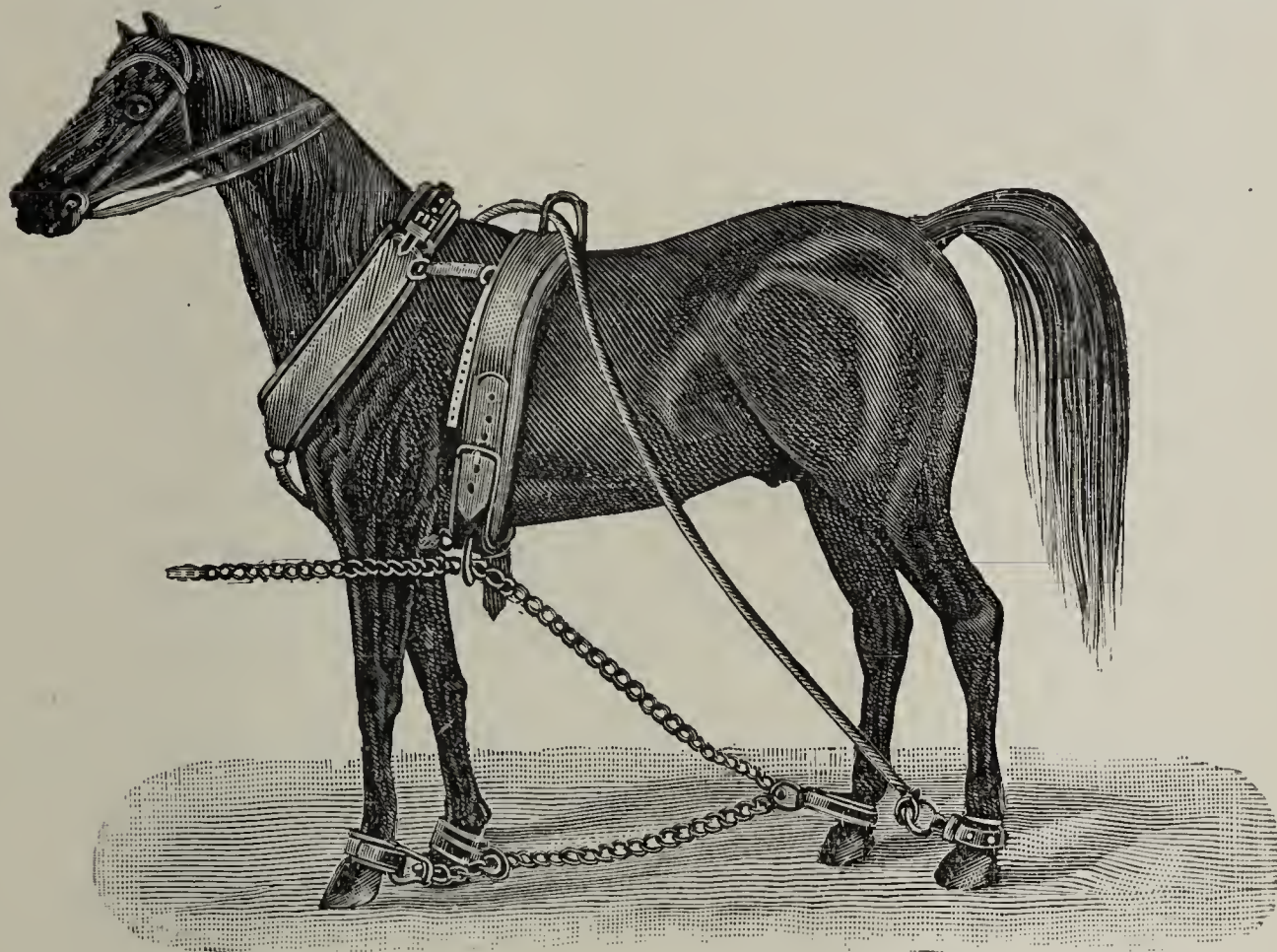
Notwithstanding the great many advantages that are offered by the use of the operating table in securing horses for operations, its cost, the necessity of ample space to establish it, will always be an objection to its admission into general practice, and on that account will always remain more or less practicable for large institutions, extensive establishments or horse-shoeing places of importance. To the ordinary practitioner, to the country veterinarian, hobbles, old-fashioned or of improved style, are likely to be more commonly resorted to and for that reason those that are presenting the least chances for accidents and injuries are deserving of special attention.

Our attention was called lately to a Danish apparatus modified by Pfeiffer, published in the *Monatschrift für Praktische*

Theirheilkunde, and for whose illustration here reproduced we are indebted to the kindness of the German house of H. Hauptner, of Berlin.

As will be observed, by the use of this process the casting is done by forcing the animal to flex his legs, followed by its slowly falling on the bed. The legs being tied up to the body, their extension is impossible, muscular contractions are limited and excessive flexion of the vertebral column prevented. Besides this, the guard flexion of the extremities allows full view and easy access to all regions, specially the inguinal.

The Danish hobble is applied as follows: The chest belt



(a) and the collar (b) are put on the horse. If he is to be thrown on the right side, the ring hobble is placed on the near fore leg and the chain passed through that of the left fore and hind leg, to be brought back and run through the low ring of the chest belt. A rope secured to the ring of the hobble of the near hind leg is then carried through the ring at the top of the chest belt. The head is held by assistants. A pull made at the same time on the chain and on the rope brings the legs together—the animal is cast. The chain is fixed in the usual way, and the rope pulling the near hind leg near the body and towards the upper ring of the belt, is secured after twisting round the coronet. The cost of the apparatus is 75 marks, about \$16.

BIBLIOGRAPHY.

MICROBIAN DISEASES OF ANIMALS (Les Maladies Microbiennes des Animaux.)
By Profs. Nocard and Leclainche. Second Edition. 1898. Published by Masson & Co., Faubourg St. Germain, Paris.

“The first edition of this book, exhausted in eighteen months, has been so kindly received, that a long preface is not required.” These first lines of the introduction from the authors show with perfect right how they feel sure of their success; success which, in fact, is so well deserved. The second edition of the work is superiorly good. Strengthening as it does the excellent qualities of the first, it is called to be among the books of all scientists. It no doubt will find its place also among the ordinary practitioners and the ever-studying veterinarians. The text is concise, the reading clear and easy, and the contents will keep the interest of the reader constantly awake through the 956 pages that the work contains in its twenty-nine chapters.

It is an almost entirely new work that Profs. Nocard and Leclainche present to the public. But the fecundity of the methods due to the genius of Pasteur, is such that most of the subjects treated in the first edition have been modified or transformed on account of the progress made. And, besides, important additions have been made. Among the new chapters must be mentioned: *Tetanus, gangrenous septicæmia, hæmorrhagic septicæmias of horses, bovines, sheep and goats, coli-bacillar infections, epizootic abortion, contagious agalaxia, aviary diphtheria, cerebro-spinal meningitis*. All those questions have been brought down to the point of view of veterinarians; no doubt a process in favor of the practical instruction of the book.

For all veterinarians that read French “Microbian Diseases” is a work of immense value. The house which publishes it, Masson & Co., present it to the public in their usual fine style of printing, etc. It is to be hoped that a translation will enable English readers to benefit by all its valuable information at an early date.

The first edition has met with success; we have no doubt that the second will receive even greater appreciation at the hands of the scientist, the sanitarian and the busy practitioner.

IN a recent edition of the New York *Herald* a veterinary infirmary advertises that it receives sick dogs for treatment, and closes the announcement by the significant paragraph that it owns and operates a canine cemetery.

SOCIETY MEETINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order by President Robertson at 8.30 P. M., Feb. 1, 1899. The following members responded to roll-call: Drs. Ackerman, Bell, J. S. Cattanch, Jr., Clayton, Delaney, Dickson, Ellis, Farley, Gill, Grenside, Hanson, MacKellar, O'Shea, Robertson and Ryder. There were also present as visitors Drs. Bertram, Newport, R. I., Walker and Mannix, Brooklyn, and 12 or 15 students from the two veterinary colleges.

The minutes of the previous meeting were read and approved.

A quorum of the Board of Censors not being present, their meeting was deferred until after the reading of the first paper, which was presented by Dr. Ryder, entitled, "Some Fine Points of Opinion in the Examination of Horses for Soundness," as follows:

"EXAMINATIONS FOR SOUNDNESS."

It is not my intention to-night to enter into a general detail of examining horses for soundness, but to present to you briefly three points of unsoundness upon which we frequently disagree, which I cannot say is to our credit, taking into consideration our knowledge of these conditions. At the same time the great difference in opinion so often given by veterinarians is not likely to increase confidence and respect in our profession by the general public.

Before taking up either of my points of unsoundness, I wish to say that my interpretation of the term "sound horse" is, an animal without acute or chronic pathological condition or lesion; "practical soundness," an animal with a chronic pathological lesion, but one which is not likely to interfere with his usefulness. Under these definitions of soundness the conditions I am going to present to you will be unsound.

SPLINTS.—Adhering to the term sound, an animal with a splint must be condemned, but the question so often in dispute is, "When can an animal with a splint be passed practically sound?" That we take into consideration several factors in reaching a decision of this kind is admitted by all, at the same time the public should know that certain factors do exist which may either condemn or pass the animal practically sound. I will admit that a large number of horses are working every day and

going sound with splints, at the same time we know a great many do not.

Dealers almost without exception claim to their customers that a splint is not an unsoundness, and our profession has made no effort to enlighten the purchaser upon the subject; in fact, we have placed him in a position at the present time more bewildering than ever; we have done this by one veterinarian passing the horse without mentioning the splint, or perhaps calling it a blemish, while another condemns him outright or passes him practically sound.

In examining an animal with a splint for practical soundness the following factors should be taken into consideration, viz.: 1, age of the animal; 2, size of the splint; 3, its location; 4, class or breed of animal (work required); 5, action of animal; 6, gait of the animal.

An animal under six years of age should always receive a very close examination, all factors being carefully considered, and the animal *not* to receive the benefit of doubt.

The location of a splint is of the utmost importance in determining his serviceability; if situated close to or at the knee he should be condemned; if on the posterior border of the rudimentary metacarpal, condemned, as should also the commonly called pegged splint, that form which extends across the posterior surface of the principal as well as the rudimentary metacarpal bones. The exceptionally low splint should also receive close attention on account of its great tendency to interfere with the action of the flexor tendons. The knee splint being condemned on account of its tendency to involve that articulation, those on the posterior border of the rudimentary metacarpal and the pegged splint on account of their interference with the action of the flexor tendons. Some practitioners claim that the tendons will adapt themselves to their changed position in a short time and the animal go sound, but my experience has been otherwise.

Size.—This also has important bearing upon practical soundness; an exceptionally large splint should always be regarded with suspicion, immaterial of its location, and unless all other factors are exceptionally favorable, should condemn.

Class or Breed.—In harness and saddle horses the purchaser should receive the benefit of all doubts, as the work required of this class is of the kind likely to cause a recurrence of splint lameness, while in the draft horse who is never or seldom asked to go off a walk the practitioner can be more lenient.

Action.—This is of great importance, and the following should be taken into consideration, viz.: Does he go high, and does he strike the ground hard? The higher his action and the harder he strikes the ground the greater will be the tendency for him to reproduce periostitis, lameness, and increased development of the splint.

Gait.—Does he wind, paddle, travel close, toe-in, etc.? In examining a horse with a splint notice all the irregularities in his gait, some I have mentioned and many others I have not; if any irregularities exist notice if they are likely to cause him to interfere or hit himself; if so condemn. I know a great many horses with an irregularity of gait will go sound for an indefinite period, but you do not know at what moment he will interfere, and reproduce periostitis, lameness and increased development.

I also realize that a great many horses with splints in a bad location, and faulty action, give good service. On the other hand, many do not, and the chances are against them; therefore, I believe we are justified in condemning on the grounds I have mentioned, and if we do not our clients are not receiving justice at our hands. As for a splint being classed as a blemish, I do not believe that any pathological lesion which may under certain conditions cause lameness can be put down as a blemish.

SPAVIN.—When does a coarse hock become a spavin?

Not many years ago the term coarse hock was comparatively unknown; that is, outside of our profession, but of recent years it has become alarmingly common and one used to cover a multitude of sins. Dealers will claim, and I regret to say some practitioners will pass a horse with the term "coarse hock" when he has a spavin that can be photographed a block away, providing he goes anywhere near sound at the time.

A coarse hock is one with well developed cuneiform bones, possibly with the same well developed condition of the principal and rudimentary metatarsal bones; in other words, they are more rough and prominent around this articulation than usual. I may add that at the present time a coarse hock of this kind in a horse six years old or older is more rare than a true spavin.

In examining for soundness it is necessary that we make a correct differential diagnosis between a coarse sound hock and one spavined and unsound, in justice to both buyer and seller, for we will all admit that a true coarse hock will stand as much wear and tear as a smooth one and frequently more. We should also bear in mind that it is common to notice in three and four

year olds a pronounced coarseness of this articulation and that with proper care they will fine down by the time they reach their sixth year.

Granting what I have said I do not believe that a finely bred horse with smooth even articulations at other points can have a pronounced *normal* coarseness of one or both hocks, neither do I believe that a horse can have a pronounced enlargement or coarseness, if you like, of one hock and a fine, smooth hock on the opposite side.

The number of spavined horses sold at the present time as being coarse in one or both hocks cannot be imagined by one not in close touch with the sale marts. Again, it is almost beyond one's comprehension how some men can and will stand up and propound theories regarding this condition in order to justify themselves in passing these animals. One case comes to my mind and is as follows, viz. : Several years ago a stallion of international reputation was condemned for spavin by two or three of our most able practitioners, while two or three others passed him sound with a coarse hock, one of whom advanced the theory that animals of this breed, especially the entire horses, were always exercised on a lunge rein, which threw their weight from the centre and almost entirely upon one side, and on account of this a coarseness developed to compensate the articulation for the increased weight it was called upon to carry, forgetting in his argument that animals exercised in this manner are reversed every few minutes, which causes the weight to be continually shifting from side to side. Again, if this condition did develop in one or both legs it would be nothing more nor less than an exostosis (spavin) due to the periostitis which the weight caused if it caused anything.

You will also notice some practitioners condemn horses when this coarseness is situated on or near the anterior surface of the hock and pass a more pronounced condition of the same kind if situated on the internal surface near the posterior border, which I believe is wrong; if a coarseness is sufficient to be called a spavin at one point it is at another, because it is not so conspicuous, does not change its pathology nor its tendency to cause future trouble.

In examining a horse whose hocks are suspicious and where you are in doubt as to the true condition, examine him first cold, drive him, and again when cooled out, trotting him to the halter on each examination, also watch him closely when backing from the stall, and turn him short on both sides. You may also

flex his hocks strongly for a few minutes and then trot him, and if you fail to detect any soreness or irregularity of action at any time during these examinations or manœuvres, both hocks showing you an equal amount of coarseness or very nearly so and then not pronounced, I believe you have a coarse hocked and sound horse.

CURB.—When is a horse with a curb practically sound?

Ist. All animals, immaterial of the condition of the curb, under six years of age should be condemned.

2d. An animal of any age with a round bone and a curby conformation (cow hocks) should be condemned.

3d. All large curbs and especially those soft and accompanied with a thickening of the surrounding tissues should be condemned.

An animal over six years of age, all conditions being equal, has the advantage over a young and immature one.

An animal with a good, straight leg, and well developed hock, over six years of age, having a curb of long standing, which is small, hard, and who shows no lameness or irregularity of action either when cold, driving, warm, or after cooling out, can be passed practically sound.

A condition frequently met with and one often causing a difference of opinion, is where the rudimentary metatarsal and cuboid bones extend around upon the posterior border of the leg beyond their usual distance. This condition should be examined very carefully, and if no thickening or enlargement of the sheath of the tendon or exostosis on the bones can be detected, he should be passed as sound; but if this condition exists in an animal of curby conformation, even if no true curb exists at the time, I believe he should be condemned, for we know that if an animal of this kind receives the least hard work a curb will be developed which will be very unsatisfactory to the purchaser and no credit to the examiner.

I have omitted the pathology of these conditions, as we all agree upon it, and have attempted to bring before you in as few words as possible the conditions as they exist and as we meet them when examining for soundness, and I hope that some rule or understanding can be reached by which we can agree, and not render opinions directly opposite to each other, as so often happens at the present.

This paper was freely discussed by the members present, most of them agreeing with the excellent points brought out by Dr. Ryder's essay.

Moved and seconded that a vote of thanks be extended to Dr. Ryder. Carried.

Moved and seconded that fifteen minutes' recess be granted for the Board of Censors to transact the details in hand. Carried. So ordered by President Robertson.

Report of Board of Censors: Dr. Clayton, Chairman, reported that in the case of Dr. J. S. Lamkin, the board sustained the findings of the previous board at the December meeting, and recommended that it take the usual course according to the by-laws of the association, and that the board recommended the acceptance of Dr. J. S. Cattanach's resignation. Moved and seconded that the report be accepted, and that the Secretary notify Drs. Lamkin and Cattanach of the action taken. Carried.

Dr. Ackerman then read a very interesting paper entitled "The Hygienic Marketing of Milk," describing a method entirely new to members, and exhibited a sample of milk bottled by this new process, which was afterwards sampled by the members and proved to be of a most excellent quality. After some discussion, which had to be limited for want of time, a vote of thanks was tendered to Dr. Ackerman.

Dr. O'Shea, Chairman of the Judiciary Committee, then submitted the report from that committee notifying the association that another attack had been made upon our present State law regulating veterinary practice. Moved and seconded that the report be accepted. Carried.

Moved and seconded that a committee be appointed to investigate the legality of the appointment of laymen as meat inspectors, with full power to act. Carried. President Robertson thereupon appointed the following committee to act in that capacity: Drs. H. D. Hanson (Chairman), H. D. Gill and C. E. Clayton.

The following committees were also appointed by the President: O'Shea Testimonial—Drs. J. E. Ryder (Chairman), Roscoe R. Bell and T. Delaney. Prosecuting Committee—Drs. F. C. Grenside (Chairman), H. D. Gill and E. B. Ackerman.

Meeting adjourned at 11 P. M.

ROBERT W. ELLIS, D. V. S., *Secretary*.

CHICAGO VETERINARY SOCIETY.

The regular monthly meeting was called to order Jan. 12th by the President, Dr. Robertson. The following members were present: Drs. Allen, Campbell, Clancy, Dubia, Fish, Howe,

Hughes, Merillat, McCoy, McGarth, Paxson, Pierce, E. L. Quitman, Robertson, Ryan, Walker, Wingate, and Worms.

The Legislative Committee presented a report recommending all members to call upon the representatives and senator of their district and exert every effort to have them exercise their influence in behalf of a bill to be presented to the Legislature for the regulation of the practice of veterinary science throughout the State. The report was accepted and the Secretary instructed to notify absent members of the recommendation of the committee.

Dr. L. A. Merillat then read his paper on "Roaring, Snoring, Whistling, Grunting, Heaves, Weaving, Cribbing, Side-pulling, Balkiness, Chorea and Paresis," as follows :

MR. MERILLAT'S PAPER.

Among the subjects assigned me are "Balkiness" and "Side-pulling." These have already been discussed at length, and, therefore, require no reconsideration. The remaining topics for discussion to-night are "Roaring," "Whistling," "Snoring," "Grunting," "Heaves," "Cribbing," "Weaving," "Chorea," and "Paresis."

Roaring is a name used to denote the abnormal inspiratory sound manifested in horses during more or less severe exertion. It is the effect produced by a stenotic condition of some part of the upper air passages, which may be classified according to location into nasal, pharyngeal, laryngeal, and tracheal.

Nasal stenosis is due to some pathological condition of the nasal cavities, sinuses or their lining membrane.

Pharyngeal stenosis is usually the result of compression of the pharynx by abscesses or tumors in the guttural region.

Laryngeal stenosis in 95 per cent. of all cases is due to vapidity of the left arytenoid cartilage and vocal cord, but may be the result of polypi or any neo-formation.

Tracheal stenosis is ordinarily the result of a previous tracheotomy or of accidental traumatisms, causing, by an inflammatory process, collapse of the tracheal rings. Hyperplastic conditions within the trachea are rare entities.

Animals that have been subjected to tracheotomy are fit subjects for condemnation, as stenosis, especially in young animals, is a frequent sequel. Purchaser must at least be told of the possible result.

Roaring from any of the above or similar conditions must be considered an unsoundness without reservation or exception.

The abnormal respiratory sounds occurring along the course of acute catarrhal affections and which disappear with the mor-

bid process are not to be dealt with too harshly, and animals so affected might justly be referred for future examination, but any abnormal sound following in the wake of such diseases, although they often gradually abort, must always be regarded with suspicion. The veterinarian is never justified in risking a prognosis in such cases.

Whistling is a synonym for roaring.

Grunting is evidently intended to denote the short expiratory sound observed in horses when executing a sharp turn. This sound points to pleural adhesions, the result of a previous pleuritis. It usually follows infectious pleuritis and is frequently associated with roaring. In the horse dealer's vocabulary such animals are called "bulls." The grunting varies with the extent of the lesion, which in many cases renders horses almost useless for heavy or fast work, especially during the warm months. Prolonged panting after exertion is ordinarily produced by this condition. Horses so afflicted are unsound, but acute grunting occurring during the preliminary stages of pleuritis, pericarditis, pinkeye, and purpura hæmorrhagica, and rheumatism must be differentiated from the chronic.

Snoring.—If snoring in the equine species is analogous to the ungodly guttural sound produced by the genus homo during his slumbers then I must regard it as evidence of sound health rather than that of unsoundness. If there is anything that savors of good health more than another it is loud snoring. In this I refer to the human, and no doubt the same deduction will apply to the horse. In any event, at \$2.00 per capita the examining veterinarian would hardly be expected to sit up nights and patiently wait for the horse to slumber in order to determine whether or not he is an habitual snorer.

Sniffing, although not mentioned on my list, deserves notice, because it is a condition which may be entirely overlooked in an examination. This sound is observed during rest and may be entirely absent during exertion. It is usually the result of circumscribed hypertrophy of the nasal septum near the anterior nares.

Another condition closely allied to the foregoing is atrophy of the nasal dilators due to paralysis of their motor nerve. The nostril being unable to dilate is drawn inward during each forcible inspiration, causing a dyspnœa so severe as to almost suffocate the animal. In partial paralysis these symptoms are modified in proportion to the degree of paralysis and might be so slight as to be mistaken for less serious conditions.

Heaves is a dilatation of the pulmonary alveoli resulting from a variety of functional or pathological derangements. It is clinically manifested by a double expiratory effort to expel the tidal air from the dilated cells. Heaves, however trivial, is a condition which must condemn any animal so afflicted. It can be controlled by careful management, but is never entirely cured and with hard or fast work, careless dieting or improper sanitation will sooner or later render an animal useless.

Cribbing is a habit induced by idleness, and is of two kinds: 1st, cribbing by support, and, 2d, cribbing without support. The latter is also called wind-sucking. The former often terminates in the latter. Cribbing by support is executed in about the following manner: The head is fixed by resting the upper incisors upon some fixed object, air mixed in the mouth with saliva is rapidly forced by suction into the pharynx, which has been dilated by forcible contraction of the omo-hyoideus, and sterno-thyro-hyoideus muscles. As these muscles relax the larynx quickly resumes its normal position, and thus with the contractions of the pharynx forces the air into the œsophagus. Cribbing without support is the same act minus biting.

Cribbing is not an unsoundness, and if the habit did not occasionally result in cœliac diseases, it might be entirely overlooked in examinations. Prejudice, however, forces the veterinarian to reject all cribbers.

Weaving is also a habit caused by idleness. It should not be considered sufficient reason for condemning a good horse. In this I will probably not be upheld by the majority of veterinarians, but I take this stand because weavers are usually high-class horses with unusual powers of endurance.

Chorea is a disease of the corpora striata and optic thalami, often extending to the cervical cord (this is the statement of recent writers). Its clinical manifestation is that of muscular delirium. It is a common affection of man and the dog, but is rare in the horse. Being a disease with a chronic course, its possessors must be stamped as unsound.

Paresis.—The general diminution of nerve force originating in the higher nerve centres and exerting its effect not only upon the psychic but also the motor and sensory functions of the whole body is a condition I have never observed nor heard of in the horse. Chronic hydrocephalus resulting from an exudation or transudation into the lateral ventricles might be said to cause a paresis. But I fear this nomenclature will not bear up under critical discussion. If, however, the word is intended to denote

a partial peripheric nerve paralysis, para-paresis, or tabes dorsalis, then I can dismiss the subject by simply stating that all such diseases determine decided unsoundness.

DISCUSSION.

Dr. Hughes: I congratulate Dr. Merillat on having so thoroughly covered the ground, and I am sorry that he has not left an opening, allowing us a greater opportunity to criticise his effort. At the same time, there are a few points in which I do not exactly agree with him. Snoring, for instance. Dr. Merillat expresses himself rather lightly regarding the question of snoring. It is a very disagreeable habit and one that markedly lessens an animal's value, and we do not have to stay up all night to hear an animal snore. Snoring in a horse is due to vibration of the membrane between the false nostril and nasal chamber proper. That it may be acquired I have demonstrated to myself by having seen one horse contracting the habit from another, owing to standing in an adjoining stall. The horse referred to snored while standing quietly in the stable, but rarely did so on the street. Dealers are always afraid that a snoring horse will be rejected, and when trotting them out to exhibit them to prospective purchasers will rub their hands down over the nostrils as soon as they bring the horse to a standstill, thus stopping the tendency to snore or snort. Dealers, too, having a pronounced snorer or snorter, put compresses attached to the nose-band of the bridle over the false nostrils, and in this manner prevent it. In regard to grunting I cannot subscribe to the theory that it is always caused by thoracic adhesion. I have held post-mortems on some pronounced grunters, but in two cases have found it was produced by cirrhosis of the liver, one of these cases having a liver weighing nearly forty pounds. There were no pleuritic adhesions in either of these cases, nor was there any abnormal lesions of the larynx present. Regarding cribbing, I would like to ask as to whether it is possible for a horse to swallow air? According to our essayist it is. Is it possible for the pharynx to contract on a volume of air so as to force it down the œsophagus, considering that such air has so many ways of escape? What we do know is, that some cribbers fill up with air, and whether it is liberated as a consequence of indigestion, or whether the air is sucked down the œsophagus, is a question that I have been unable to solve. Regarding chorea, I am surprised to hear the essayist make the statement that it is rare in the horse. I frequently meet with it in my practice. If chorea is rare in the

horse, then I have for years been regarding wrongfully a certain condition as chorea. The condition I refer to is that peculiar spasmodic twitching and contraction of the muscles of the hind limbs or tail exhibited when a horse is backed up or turned around, or sometimes seen when the animal is standing quietly in the stall.

Dr. Merillat: Mr. Chairman, as to snoring, I agree with Dr. Hughes, except in the nomenclature of the condition. The term "snoring," described by physiologists, is a guttural sound produced during slumber—consequently, I took it for granted that you wanted a description of that condition. The trouble Dr. Hughes described is due to muscular atrophy, which is a very common condition. I have a case in mind that was so aggravated that it nearly suffocated during exertion. I do not call this condition snoring. I took snoring to mean nothing else but snoring. If you can get a name for a noise between sniffing and snoring you can name the condition Dr. Hughes describes. Regarding grunting I have stated that it is *usually* due to pleuritic adhesion, following infectious pleurisy, and affecting the left inferior laryngeal nerve, which accounts for its frequent association with roaring. Grunting may also be caused by abdominal lesions. One grunter I held a post-mortem on was found to have an adhesion between the colon and parietal peritoneum. That animal was a fearful grunter. In my experience, however, I have found that a pleuritic condition is the more frequent cause of grunting. In writing these remarks I was at sea in dealing with the word "paresis." Paresis, as a general disease or a primary condition is, I believe, the name applied to a form of human insanity not recognized in the lower animals. The word paresis, of course, might be used to express partial paralysis of special nerves, all of which, as stated in my paper, must be regarded as serious conditions. As to swallowing air, I am in the same fix as Dr. Hughes, so far as my own observations are concerned. I have, however, observed that when a bloated cribber is tapped with a trocar and canula the gas will not ignite, and has not the characteristic smell of the usual intestinal gases.

Dr. Quitman: I want to add my evidence to this last statement. In the first place, there is no doubt that a human being can swallow sufficient air to swell himself up. In fact, I know a man who does it for fun. If it is possible for a man, it ought to be for a horse. The gas seems to be much cooler than that of fermentation. Then, the horse does not show the in-

tense distress that the gas of fermentation would cause. Paresis is a word that is used in a very broad sense. If I am not mistaken, it was originally meant to describe cerebral softening, but now commonly used to describe a local affection. In regard to cribbing, inasmuch as it happens so often that it turns into wind-sucking, I think it ought to be called unsoundness. Locomotor ataxia is sometimes found in horses. One horse that I have recently condemned was probably the most beautiful case that I ever saw. As far as I could trace it, the case was in existence for about three years and he was useless for over a year. He lacked co-ordination of all four limbs, and if blindfolded and backed he would collapse in a heap. In fact, I have seen a number of similar cases that I would term locomotor ataxia.

Dr. Merillat: Oh, no. Chorea can be cured with time. In human subjects, with age it entirely disappears.

Dr. Campbell: Have you ever seen a case of St. Vitus' dance in a horse?

Dr. Merillat: I think I have.

Dr. Hughes: As to wind-sucking, those who are in the habit of tapping horses have noticed that it is a very common thing not to be able to light the gas. This is found also in horses that are not cribbers. In regard to chorea, Dr. Merillat refers to it as the same as the disease found in humans. He mentions, though, chorea of the dog, which is entirely different in its symptoms from that of man. Why not go a little further, and call this crampy condition so often met with in horses also chorea? We should endeavor not so much from a pathological as from a practical standpoint to find a suitable name for these different conditions. The same as in chorea, a decidedly crampy horse gets worse right along, hence it is a progressive disease, and it will assume an acute form sooner or later, if, for instance, such an animal be attacked with pneumonia or any acute disease. The complication always lessens the tendency to recover and often proves fatal. I always associate rheumatism with chorea, and find it a very difficult matter in many cases to differentiate them. From a practical standpoint, I would ask Dr. Merillat to give a technical name for the condition of a horse that is commonly called "crampy." I examined a horse recently for soundness at the stockyards, and in my certificate stated that the horse had chorea. The case was a very pronounced one, and I naturally rejected him. I was asked by the seller if chorea meant crampy, and I said "yes," as that is the name under which the disease is known to ordi-

nary horsemen. What technical term would Dr. Merillat use to designate such a condition?

Dr. Merillat: I would call it "stringhalt."

Dr. Hughes: In "stringhalt," there is a clean forward automatic movement, with exaggerated flexion. Where there is a hindward muscular action, the animal swinging his legs spasmodically outwards, I would regard it as chorea. The first condition is generally regarded as a local nervous one, the second as a disease in the great nerve centre.

Dr. Merillat: If you wish to call all these little crampy conditions chorea, I have no objection. Choreia is a disease of a chronic course and we have no right to call these crampy conditions chorea, although I know that many authors class them as chorea, though they never fail to state that it is also stringhalt.

Dr. Ryan: As to locomotor ataxia, we often get conditions like that from digestive trouble. I think Dr Hughes' suggestion to apply the term chorea to conditions as described above is a good one. We can safely use it. To say a horse has stringhalt or shivers would not be correct. We cannot expect a horse or dog to have a typical case of St. Vitus' dance as exhibited in the human, and if the cases are similar, there should be no objection to their being called chorea.

Dr. Hughes: I would like if we could come to a decision in regard to this matter. Supposing I examine a horse and state that he has chorea, while another veterinarian would call it a crampy horse. This would cause a considerable amount of damage to a man's reputation. Choreia, as a rule, gets worse with age; hence every horse showing even the slightest symptoms of it should be condemned.

Dr. Ryan: Is it not a poor way in cases of grunTERS caused by cirrhosis of the liver or enlargement of the heart to certify it being a grunter. Why not specify the cause?

Dr. Merillat: It would be a happy condition if we could.

Dr. Quitman: In regard to chorea of man and dog, I believe them to be identical. You will find in a dog affected with it that his foot will go first one way and then another. It is the same way with the human sufferer, if he, for instance, tries to put a spoon into his mouth. The similar conditions in the horse I would call choreic affections, which would imply that it resembles chorea. I had a case of a horse that had a cramp in one hind leg. I used all methods imaginable—used the whip, etc., but could not break the cramp. It existed ten days in one

leg; then it jumped into the other. What would you call that? I advised the owner to get rid of the horse.

Dr. McCoy: I think Dr. Quitman's client evidently got rid of him, for I saw a similar case on the street the other day. As to cribbing and weaving, are they entirely diseases that come from idleness?

Dr. Quitman: I am inclined to believe that cribbing of young horses is sometimes brought on by irritation of the teeth. It seems that they will attempt to draw the air in to cool the inflamed gums. We know that older horses sometimes take it, but it is evidently a habit.

Dr. Merillat: Friedberger and Fröhner give three causes: Heredity, idleness and association. They also quote a large percentage of army horses that became cribbers from idleness.

Dr. Clancy: In regard to a proper name for this crampy condition, why not call it "pseudo-chorea?"

Dr. Hughes: Pseudo is a prefix that in my opinion should not be used. Call it chorea and settle every doubt.

The discussion was very spirited and frequently interrupted by applause.

JOSEPH B. CLANCY, *Secretary.*

IOWA STATE VETERINARY MEDICAL ASS'N.

The meeting was called to order in the Savery House Club Room, Des Moines, January 10, at 10 A. M., by the Secretary. There being neither President nor Vice-Presidents present, Dr. D. H. Miller, of Harlan, Ia., was made President, *pro tem.*

Instead of the usual roll-call, those present were asked to write their names on a register provided for the purpose. Later, on the register was found the signatures of members present as follows: Dr. P. O. Koto, Forest City; S. T. Miller, Shelby; H. E. Talbot, Des Moines; D. H. Miller, Harlan; A. S. Brodie, Cedar Falls; G. E. Noble, Osage; M. Stalker, Ames; S. Whitbeck, Decorah; J. I. Gibson, Denison; H. Shipley, Sheldon; W. B. Niles, Ames; S. H. Kingery, Creston; S. K. Hazlit, Oelwein; J. G. Parslow, Shenandoah; Jno. E. Brown, Oskaloosa; P. Malcolm, New Hampton; S. H. Johnston, Carroll; R. R. Hammond, Le Mars; Wm. Drinkwater, Monticello; A. A. Peters, Winterset; H. L. Stewart, Oakley; C. E. Stewart, Chariton; W. H. Austin, Newton; A. T. Peters, Lincoln, Neb.; J. A. Campbell, Des Moines; J. F. Kennedy, Des Moines.

The following named visitors were also present: F. J. Nieman, Marshalltown; C. W. Stevens, Knoxville; H. E. Titus,

Maxwell ; H. S. Titus, Rhodes ; G. E. Noble, Osage ; Senator J. M. Emmert, Atlantic ; ——— Yeoman, Des Moines.

The minutes of the last annual meeting were read and approved.

Drs. Shipoy and Talbert were appointed to fill vacancies on the Board of Censors.

The Treasurer rendered a report showing all bills paid to date, and \$28.83 in the treasury. Drs. Whitbeck, Koto and Brodie were appointed as an auditing committee and the Treasurer's report was referred to them.

The Secretary's report was read, being in part a review of the life history of the organization. It said in part : "Organized in 1887 with 16 charter members, it began a sort of '*home mission*' effort. Art. II. of our Constitution says :

" 'The objects of this association are, the mutual advancement of its members in veterinary science, the cultivation of fraternity, and the elevation of the veterinary profession.' What could be of greater interest to the veterinarians of Iowa? 'Mutual advancement in veterinary science.' Let the watchword be upward and onward, and by united effort we will advance. 'Cultivation of Fraternity,' meaning a more intimate acquaintance, a closer relationship, a brotherhood, a kindliness of feeling one for another, co-operation in all things pertaining to the advancement of the profession's interests, and, 'Elevation of the Profession.' As to the association's influence along these lines there can be no doubt. It would be impossible for any wide-awake, observing student of veterinary science to attend one of our meetings and not receive some new light. Our meetings have excited the most complimentary notices from veterinarians in almost every State in the Union. As to what the association has done toward 'elevating the profession'—Do we believe that through the association we have made 'any gains along that line'? Is there a man here who has been practicing the veterinary profession for ten years past in Iowa who does not believe that the profession has a higher standing with the general public of to-day than it had ten years ago? And have the influences that have gone out from these meetings in one way and another played any part in bringing about such a change? Have the joint sessions that we have held with the members of the State Agricultural Society, and the more intimate relationships between veterinarians and stockmen thus resulting, played any part? In Iowa we now have about 200 graduated veterinarians. With the increase of veterinarians in

the State, we have not kept a corresponding increase in our membership. Why is this the case? I know that the veterinarians of this western country during the past few years have, to put it plainly, been *hard up*, and many of them have answered my letters, saying their practice would not justify the expenditure of a sufficient amount of money to attend the meetings. The one thing needed above all others, if it were possible, would be to issue printed reports of our meetings. Last year arrangements were made whereby the report might have been published in the report of the State Agricultural Society, but two of the papers were not turned over to me at the time of the meeting and I failed to get them in time to go in. The report of our meeting two years ago was to have been printed by the publisher of the *Veterinary Magazine*, but the publication suspended before our proceedings got in print. After this meeting we will have the notes and papers of the last three meetings in hand, which should by all means be published."

Discussions then followed on subjects pertaining to the interests of the association and the veterinary profession, in which Drs. Brodie, Whitbeck, Gibson and others took part, the impression prevailing that the veterinarians generally appreciate the value of the association, and that the membership and attendance at the meetings will increase as the price of live stock increases and business improves. On vote the report was accepted.

The Board of Censors reported favorably on the applications for membership of G. E. Noble, D. V. S., Osage, Ia.; H. E. Titus, D. V. M., Maxwell, Ia.; F. J. Neiman, V. S., Marshalltown, Ia., and C. W. Stevens, M. D. C., Knoxville, Ia., and on vote all were duly elected to membership.

The meeting then adjourned until 1.30 P. M.

Afternoon Session.—Meeting called to order by President Johnston. The Auditing Committee then reported having examined the Treasurer's accounts and found the statements as rendered to be correct. The report was then accepted and the committee discharged.

President Johnston then addressed the meeting as follows :

"Gentlemen of the Iowa State Veterinary Medical Association :

"It is with pleasure I greet you, another year of our association's life has passed into history, a year of marked progress in veterinary science, and only those interested in the work know what marked advantages the present veterinarian has over the past. It is the duty of every veterinarian to educate, as far as

possible, those interested in the benefits to be derived from veterinary science, rather than work in that mysterious way so commonly met with among the uneducated in all professions, to some extent, but especially so in ours. The assembling together of so many different minds cannot help but result beneficially, but the veterinarian should always remember that the man makes the profession—*not* the profession makes the man. He should be of exemplary habits,—upright, honorable and just in all his dealings between his employer and himself. It is with regret that I see the deplorable results of ignorance, as displayed through lack of veterinary education in the U. S. Army, when millions of dollars worth of property is left to the care of uneducated veterinarians, the sufferings of the bravest animals in war, and the most docile in peace, being unnecessarily increased. The Iowa State Veterinary Medical Association, of which we have a right to feel proud, came into life in the year 1887 at Ames, Ia., with 16 charter members. Dr. A. B. Morse, of Des Moines was its first president, and Dr. J. J. Street of Ames was secretary. In the past ten years we have enrolled one hundred and forty-five members, some of whom have left the State and others have been suspended for non-payment of dues; leaving our present organization with about seventy-five members in good standing. There should be no excuse now. The past few years were not very remunerative to veterinarians, but the present prospects are much brighter. It is unnecessary for me to dwell on the condition of our State laws. We should make united efforts to improve them. Let each member seek to so educate his legislators that they may understand that it is to benefit the general public, and not for party or class pecuniary motive that we are working, then I will have no doubt of the results. It is encouraging to note that the medical profession is awakening to the realization of the transmission of disease through diseased meat and milk and we hope and trust that very soon all abattoirs and dairies will be operated under inspection and supervision of qualified veterinarians. Under the campaign of our veterinary and medical journals, assisted by the public press, good results should follow in the near future. Our programme for this meeting has been selected with great care and diligence on the part of our Secretary, and it is for you, gentlemen, to make the meeting the success it should be by fully participating in the discussion. By so doing, we will go home feeling that we have been well repaid for our efforts."

The reading of correspondence was then called for. The

Secretary read a communication from the Missouri Valley Veterinary Association, through its Secretary, inviting the members of the I. S. V. M. A. to become members of their association. The invitation was duly appreciated, but it was apparently the sense of the meeting that as a body we had no authority to take any action, farther than to leave it with the members to do as they might see fit individually.

A letter was also read from Dr. D. E. Salmon, Chairman of the Committee on U. S. Army Legislation for the American Veterinary Medical Association, soliciting aid for that cause. The members were requested to do what they could personally, and a committee appointed to draft suitable resolutions. The members of the Committee on Resolutions were: Drs. Niles, Whitbeck and Parslow.

The report of the Committee on Sanitation was called for. Dr. Stewart was the only member of the committee present, and he had no report to offer. This being a very important subject, it was decided to devote some time to discussion thereon.

Dr. Miller thinks that veterinarians generally have not given the attention to the subject they should. He thinks they should be sufficiently well posted to give intelligent advice to farmers and others on such subjects, and a special effort made to educate the public along the line of general sanitation; thinks the easiest and best way to control contagious disease is by quarantine measures; thinks "prevention better than cure."

Dr. Johnston thinks this the only means of controlling contagious diseases, and farmers should be so taught.

Dr. Willis says we need more and better laws on the subject; that farmers are not inclined to take sanitary advice, and there should be laws to enforce it.

Dr. Brown thinks the laws we already have should be enforced. We have a State law prohibiting any traffic whatever in dead hogs, hogs that have died of *any* disease, or been killed on account of *any* disease, and yet they are hauled over the public highways to rendering establishments. The same State law provides that dead hogs shall either be burned, or buried three feet below the surface. We go through the country and find these dead hogs piled up in the fence corners, or lying in the fields where they dropped, decaying and the germs of disease being washed down into streams, or carried by dogs, birds, or other means over the country, and still we cry for *more law* and talk about controlling hog cholera while this sort of thing exists all over the State.

Dr. Whitbeck thinks hog cholera can be controlled by proper quarantine regulations, and advocates a State law giving veterinarians authority to issue quarantine.

Dr. Austin says one of the worst features with which he frequently comes in contact is the persistent feeding of dead stock to live stock, as practiced by the Germans, especially of his locality.

Discussion closed and Dr. Niles reported for Committee on Disease and Treatment.

Discussion followed on parturient apoplexy and the Dr. Schmidt treatment with pot. iodide. Dr. Talbot tried it twice, both cases died. Others have tried it with mixed results.

In regard to the diarrhœa of calves, Drs. Niles, Drinkwater, Austin, Johnston and others think it follows only where the cows have been *highly fed*.

Dr. Niles has not seen the disease in grass-fed cattle.

Dr. Brodie asks if Dr. Niles don't think the disease comes as an infection through the umbilical cord?

Dr. Niles thinks not in this form.

Dr. Shipley thinks it may be due to an entire change in food during later pregnancy.

Dr. Hammond saw three herds, twenty cows in each herd; the first three or four calves that came first were healthy, after that all the calves died.

Dr. Whitbeck spoke of the hard growths which form after castration in pigs.

Dr. Johnston says it is an adhesion of the divided cord to wound in scrotum; removes with knife.

Dr. Stewart thinks these adhesions are the result of the cord being divided too close to the testicle. Compared it with castration of mules; says the cord is longer in mules than in horses, and more of it should be taken off.

Dr. Shipley thinks the trouble sometimes due to the incision being too small and too high.

Dr. Austin castrates sheep with emasculator; cuts off the bottom of scrotum and both seeds at once with the instrument.

Dr. Shipley asked about sheep dips. The Fort Collins lime and sulphur dip was recommended.

Dr. Talbot reported good results in a large flock by four dippings with a solution of chloro-naphtholeum.

On the use of cathartics, Dr. S. Whitbeck reports good results from the use of from 3 iv. to 3 vi. of aloes made into bolus with sp. terebinth, administered per rectum; empty rectum

by enema, then insert ball as far as one can reach ; gets an action in from two to six hours, usually about four hours.

Dr. Johnston has had good results in this way.

Dr. Miller uses a capsule.

Dr. Shipley uses large doses of nux vomica in these cases, administered per rectum.

Dr. Niles reported for Committee on Speakers for Institutes saying that several speakers had been placed, but that the institute season was well advanced before the work was undertaken. The report was accepted and the committee continued another year.

The meeting was then adjourned until 8.30 P. M.

Evening Session.—Joint meeting of I. S. V. M. A. and Iowa State Agricultural Society was called to order by President Johnston.

Dr. W. B. Niles was introduced and read a paper on "The Practicability of Serumtherapy in Hog Cholera."

Discussions were then indulged in.

Dr. McBirney was called for, giving some of his experiences in using the treatment in Page County. He said that on the whole, the results were more satisfactory than last year. That it had been the means of saving about 80 per cent.

Dr. Stalker: How is the comparison arrived at between treated and untreated stock?

Dr. McBirney: The method is to leave an equal number of both diseased and healthy animals untreated. It was only used in diseased herds.

Dr. Niles saw two herds in adjoining fields, equally exposed and under equal conditions. The treated herd fared much better than the untreated one.

Dr. Peters, of Lincoln, Neb., said they had treated about 5000 head, 76 per cent. of which were sick, and they had saved 80 per cent. of all. Used as "*checks*," healthy animals of the same herds. Of these over 80 per cent. died. Much more is known of serum to-day than ever before. The serum we are using now is much stronger and better. Serum *will be* practical as a treatment for hog cholera.

Dr. Wallace, editor of the *Farmer*, thinks the only way to get rid of hog cholera is through quarantine, isolation, etc.

Dr. Stalker says with proper authority and management, giving township trustees absolute control and authority to quarantine and dispose of sick hogs, \$80,000 will stamp out the disease.

Discussion closed.

Dr. J. M. Emmert, late member of the State Board of Health, and now State Senator from Cass Co., was introduced and read a paper on "A Campaign of Education." The paper was much enjoyed by all present, and discussions again followed.

Dr. Gibson said one subject which is deserving of some special thought is infectious catarrhal pneumonia in cattle. It is becoming something of a scourge in Iowa, and it may yet require some special attention from our legislature to cope with it. It seems to be working its way westward from eastern centres. He also spoke on the contagiousness of and spread of tuberculosis as he had observed it while serving in the capacity of State veterinarian, giving several illustrations.

Dr. Stalker reported a case where he was called to examine the cattle and found several of them to be tuberculous. He also found that from the family that had used milk from these cattle five young people had recently died of consumption. Investigation failed to show that the ancestors of these young folks had ever been afflicted with the disease.

The meeting then adjourned to meet for clinical part of the programme at Dr. Talbot's office next morning at 9 A. M.

(To be continued.)

MONTREAL VETERINARY MEDICAL ASSOCIATION.

A regular meeting of this association was held on Wednesday evening, January 18, in the library of the college, Dr. Baker presiding. There was a good attendance of members, supplemented by the presence of Drs. Sugden and Moore. After roll-call and the reading of the minutes of the last meeting, the Chairman called upon Mr. McGregor for his "Case Report," which was one of "Perforation of the Abdominal Wall in a Three-year-old Colt." This animal was wounded in the abdominal parietes by some object (supposed to be a piece of wood, or such like object), and as it was a considerable distance from home, was not attended until the following day, and on examination revealed a wound in abdomen about $2\frac{1}{2}$ by 3 inches in size, a few inches behind the last rib, somewhat infero-laterally, and from which protruded peritoneum in a mass of about eight or ten inches in length. Having nothing better at hand, it was removed by a pair of scissors and the hæmorrhage arrested by cold water being freely applied. Wound was washed with a solution of corrosive sublimate, 1-1000, and sutured. Fever slight; administered febrifuges and ordere

animal to be fed on soft diet. Dressed wound twice per day with a carbolic solution. Next day abdomen began to swell and continued doing so for four or five days, reaching as far as stomach and extending well up sides; swelling of an œdematous character. Applied hot fomentations and poultices. About fifth day pus began to flow from wound and continued to do so for two weeks. Dressed wound with carbolized oil. Swelling began to recede and in four weeks animal made complete recovery.

After some discussion on the case, the Chairman called upon Mr. Hammond for his essay on "Hog Cholera and Swine Plague." In this interesting essay Mr. Hammond clearly defined the differences existing between these two diseases, although to a great extent they resembled each other; as it required an examination of the internal organs after death to clearly distinguish between them, and owing to the similarity of the two diseases could not say what proportion of the loss entailed by these diseases could be attributed to the one and what to the other, as hog cholera and swine plague not only resemble each other in symptoms, but also in their effect on the bodies of the affected animals. Both were caused by germs and both germs must be combatted by similar means to destroy them after they have been introduced upon the premises. Both diseases were infectious and had to be treated along similar lines and the agents used to destroy the germ of one would destroy that of the other. Mr. Hammond said that of the other infectious diseases which sometimes attack hogs, they had not been introduced into this country, or have never approached in their destructive character the two diseases named. The erysipelas of the continent of Europe appears to be the most fatal of the swine diseases, in the country where it is known, but has, however, never been recognized in America and probably never introduced into this country. Anthrax occasionally affected hogs, but was infrequent and confined to certain regions and affected other animals besides. This and erysipelas were the only diseases liable to be mistaken for hog cholera and swine plague.

The virus of hog cholera was particularly more fatal to young pigs, was more tenacious and more resisting to the conditions which affect the vitality of bacteria than that of swine plague and was more easily communicated and spread to healthy animals. Period of incubation varied between four and twenty days, during which time the germs were multiplying slowly, and overcoming the vital powers of the animal by their pro-

ducts. The bacilli of hog cholera were slightly larger and more elongated than those of swine plague, and were provided with flagellæ, which enabled them to move rapidly in liquids, while the germs of swine plague had no such appendages and were involuntarily moved about by the liquid in which they floated. The essayist went on at length to describe the differences between these two germs, their mode of invasion and the different methods of producing them experimentally. After enumerating the symptoms common to the two diseases, Mr. Hammond said that although the symptoms were not noticeably different, yet frequently, however, the lungs are extensively inflamed in swine plague, and in that condition the breathing is more oppressive and labored and the cough more frequent and prompt. The course of the disease varies from one to two days to two to three weeks. As to the diagnoses, he said that after enumerating the various symptoms presented, we could readily come to a conclusion that either one or both the diseases were present. Prognosis unfavorable, especially if the animals were very susceptible and the contagion very virulent. The loss sometimes reached 95 to 100 per cent., but at other times if the animals were more capable of resisting the contagion, it did not exceed 20 to 60 per cent., but what animals did recover from the disease often remained lean, stunted in growth, or never become really healthy hogs. As to the treatment of the disease, he said that the use of anti-toxic serum appeared at present to be a much more promising method, combined with sanitary regulations, of diminishing the losses. The serum is prepared by inoculating horses and cattle with cultures of the diseased germs, and repeating these inoculations with gradually increasing doses until the animals have attained a proper degree of immunity. The blood of such animals injected under the skin possesses the power of curing sick hogs and of preventing well ones from taking the disease. Unless the blood is to be used immediately after drawn, which is not often the case, it is allowed to coagulate and the liquid portion or serum is separated and preserved for future use, so that we have every reason to believe that in the serum we have a practical method of preventing the greater part of the losses from these diseases; but it would have to be tested on a larger scale before absolute assurance could be given, but hoped that all doubts would be cleared up by the experiments planned for 1899. The essayist then enumerated the characteristic post-mortem lesions of the disease, concluding by drawing attention to the fact that in hog cholera the

first effects of the disease were found to be on the intestines with secondary invasion of the lungs, and in swine plague the first effect was found to be on the lungs, and the invasion of the intestines a subsequent process.

A discussion ensued with especial regard to the use of anti-toxic serum as a prophylactic and curative remedy, being finally conceded that the results so far obtained were of practical value.

The Chairman then addressed the meeting with regard to the quarantine regulations and the method of stamping out the disease. He said it was a well established fact that ordinary treatment was useless, but hoped for good results from the use of anti-toxic serum. In Canada the disease had never reached a grave proportion, but had been a scourge to some parts of the United States, and as they had had the diseases before in Canada, we reaped some benefits in regard to the work of combating them. He attributed our small loss to the vigorous methods the government had taken in regard to these diseases, and that the owners of animals should co-operate with the government to aid in their suppression, and concluded by thanking Mr. Hammond for his excellent paper.

Mr. Henderson was appointed essayist for next meeting, and Mr. Gellatly to report a case, after which the meeting adjourned.

JOS. MCGREGOR, *Sec.-Treas.*

MINNESOTA STATE V. M. ASSOCIATION.

The fourth semi-annual meeting was held on January 12th and 13th, at the State Experimental Farm, St. Anthony Park, Saint Paul, Minn. A large number of the city and country members were present.

The reading of the Secretary's and Treasurer's reports were dispensed with for the time being, and the clinical programme proceeded with.

Dr. M. H. Reynolds presented a number of interesting cases of obscure lameness, among which was one of embolism of the femoral artery; a case of recovered osteoporosis was also presented, which had been cured by the daily administration of phosphate of lime. The same case was shown to the attending members at the meeting held a year ago, when the animal was suffering from a very pronounced attack of osteoporosis. Dr. R. Price, of Saint Paul, presented a case of a well-bred pointer dog which had been shot in the lumbar vertebræ and as a result the right hind leg remained in a condition of tonic spasm with the back badly arched. The dog was destroyed and a minute dis-

section showed a blood clot at the base of the brain. Dr. C. C. Lyford, of Minneapolis, presented a case of deafness in a well-bred bull dog as a result of an injury. The Doctor also made a very interesting dissection of a horse's head presenting extensive injuries to the roof of the mouth. Dr. B. A. Pomeroy, of Saint Paul, presented a chestnut gelding which had recovered from a very severe attack of purpura hæmorrhagica, giving a full history and treatment of the case. Dr. Reynolds gave a demonstration in caponizing.

The members then adjourned until after supper, when the meeting was called to order by Vice-President Reynolds.

After the reading of the Secretary's and Treasurer's reports, the Secretary read an address from President N. S. Erb, in which the latter expressed his sincere regrets at not being able to attend, and wishing the members a successful and prosperous meeting.

A lively discussion then followed on dealing with cases of illegal practice, and a number of important motions to that effect were made and carried.

The following members then reported some interesting cases: Dr. J. S. Butler, of Minneapolis, "Ossification of Thyroid Gland and Portion of Larynx following the Operation for Roaring;" "Retention of Pus in Sinuses Necessitating Trephining." Dr. C. C. Lyford, case of "Tenotomy." Dr. W. Amos, of Owatonna, presented a very fine specimen of a two-headed calf delivered by him a short time ago. Dr. J. N. Gould, of Worthington, reported an interesting operation for a tumor in a cow. Dr. J. A. Hanish, of Lake City, presented a tooth deposit found in an abscess of the thyroid gland.

The nomination of officers then took place, and the following were elected for the ensuing year. President, Dr. M. H. Reynolds, of St. Anthony Park; First Vice-President, Dr. S. H. Ward, of St. Cloud; Second Vice-President, Dr. W. Amos, of Owatonna; Secretary and Treasurer, Dr. L. Hay, of Faribault. Board of Trustees—Drs. M. H. Reynolds, L. Hay, K. J. McKenzie, R. Price and C. C. Lyford.

The meeting then adjourned until January 13th, when the following operations were demonstrated: Cunean tenotomy, Dr. K. J. McKenzie; anterior and posterior tibial neurectomies for relief of spavin lameness, Drs. S. D. Brimhall and K. J. McKenzie; arytenoideraphy, Dr. M. H. Reynolds, Dr. W. Amos acting as anæsthetist; ovariectomy in a bitch, Dr. J. J. Annand.

The meeting adjourned for dinner, after which the clinical

programme was continued as follows: Tenotomy, Dr. C. C. Lyford; cauterization of tendons, Dr. B. A. Pomeroy; extracting the third lower molar tooth, Dr. J. P. Anderson; cauterizing exostosis on inside of tibia, Dr. J. S. Butler; a dissection of inguinal region, Drs. Brimhall, McKenzie and Annand; high plantar neurectomy for ringbone in hind leg, Dr. L. Hay; low and high plantar neurectomies for navicularthrititis, Dr. C. C. Lyford.

Meeting adjourned for supper.

At 7:30 a bay horse was cast, which was supposed to be a one-sided cryptorchid, and Dr. K. J. McKenzie proceeded to operate, when he found on each side of the scrotum cicatrices from former incisions: as the right testicle was down, and the owner left word that the hidden testicle had not as yet been removed the Doctor naturally made his incision on the left side; after separating, however, the fibrous thickening he found what he pronounced to be the stump of the spermatic cord. The history of the case was then cleared up. Some time ago the horse had been cast for operation by an unskillful castrater, who removed the left testicle, which at that time was down, and made an incision on the right side in the attempt to get the right testicle, which, however, at that time was located high up in the inguinal canal, but had since descended. Such a case as this proved to be a very instructive one in cryptorchid castration and confirmed the fact that the owner's word cannot be relied upon in these cases. Anterior and posterior tibial neurectomies, Dr. M. H. Reynolds.

A vote of thanks was then tendered Drs. M. H. Reynolds and S. D. Brimhall for their courtesy and assistance in making this meeting such a successful one, after which the meeting adjourned.

L. HAY, V. S., *Sec'y and Treas.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Dr. R. W. Hickman, of New York, and Dr. S. Stewart, of Kansas City, have already come to an understanding as to plans and methods for the meat inspection display at the next meeting, and the prediction is made by the latter gentleman that the collection of specimens will contain a much greater variety and be much better arranged than was accomplished on the first trial and on short notice. He says: "You cannot present this matter so strongly to the readers of the REVIEW that they will not declare that the display exceeded their expectations when they come to examine it. This feature alone should prove

highly attractive and instructive to the veterinarians of the East, and West for that matter. The specimens may be utilized by the Colleges in your State should they desire to procure them after the display."

Dr. Roscoe R. Bell, of New York, will present a paper upon the subject of "Acetanilid as an Antipyretic for the Horse."

Dr. W. H. Dalrymple, of Louisiana, offers a paper on "Dietetics."

Dr. W. L. Williams, of New York, has informed the Secretary that he will present a paper.

Dr. H. D. Gill, of New York, has consented to read a paper descriptive of an operation which he will perform at the surgical clinic. So has Dr. Paquin.

Dr. Charles E. Clayton, of New York, has indicated his willingness to participate in the surgical clinic.

The Committee of Arrangements have already secured possibly the best arranged room for the surgical clinic in the United States—the sales ring of the American Horse Exchange, at Fiftieth Street and Broadway, and a veterinarian, Dr. Wm. J. Magee, of New York, will place in position one of his operating tables for the use of those who prefer it. The centrality of the Exchange, the room, light, and general appointments are perfect, and the committee was extremely fortunate in securing it.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The fifteenth annual meeting of this association was called to order by the Secretary, January 12th, in the State Street House, Trenton, at 11 o'clock, the President and several other members being detained at home by illness. Dr. Miller was elected President *pro tem*. Both essayists being absent, the regular routine business was concluded, excepting the election of officers. The Committee on Resolutions on the death of Dr. Dustan, of Morristown, offered the following report:

WHEREAS, It has pleased Almighty God, to remove from our midst and from this association our friend and brother, Dr. James C. Dustan, therefore,

Resolved, That while we bow in humble submission, we recognize that we have sustained a great loss, in that he was one of our most influential and highly respected members, one who had endeared himself to each and all, by his gentlemanly deportment, his kindly acts, and by his sense of honor and regularity in the practice of our honored profession.

Resolved, That we recognize our loss and the loss to the community in which he practiced the profession of his choice, and we recommend to

our fellow-members that they emulate the example he set before us, and try to follow closely the precepts he always endeavored to teach and practice.

Resolved, That a copy of these resolutions be sent to the bereaved family, and be filed in full in the records of this association.

[Signed] DRs. W. B. E. MILLER, L. P. HURLEY, R. O. HASBROUCK, J. W. HAWK, and S. LOCKWOOD, *Committee*.

Moved that the same be accepted.

The meeting then adjourned for dinner and to continue Feb. 2, 1899, at 1 P. M. in Newark.

Meeting reconvened at the Arlington Hotel, Newark, on Feb. 2d, at 1 o'clock. The President, Dr. W. H. Arrowsmith, in the chair. After dinner, the meeting proceeded with the regular business. The election of officers resulted in the following: President, L. P. Hurley; First Vice-President, R. O. Hasbrouck, Second Vice-President, H. W. Read; Secretary, S. Lockwood; Treasurer, B. F. King; Trustees, W. B. E. Miller, W. Runge, J. W. Hawk, J. M. Everitt and M. M. Stage. All were elected for two years.

Dr. Arrowsmith made a lengthy address and introduced Dr. Hurley, the new President, who responded in a short and forcible speech. He was followed by Drs. Miller and Hawk. Dr. Read, the essayist, was excused from reading his paper, as it was time for his train.

Essayists for next meeting, Drs. Arrowsmith, Miller, and Hasbrouck. Delegates to the New York Associations, Drs. Hawk and Lockwood; to the Pennsylvania Associations, Drs. Hurley, Hasbrouck and Brown. Adjourned to meet at same place in May.

S. LOCKWOOD, *Sec'y*.

PENNSYLVANIA STATE V. M. ASSOCIATION.

The annual meeting will be held in the Veterinary Department of the University of Pennsylvania, 360 Pine St., Philadelphia, March 7 and 8.

The programme follows:

Papers.—Dr. J. C. Michener, "Prognosis"; Dr. A. N. Lushington, "Stock Farm Veterinary Practice as a Post-Graduate Course"; Dr. J. F. Butterfield, "Castration of Cryptorchids (Ridglings)"; Dr. W. S. Phillips, "Tracheotomy in Laryngitis and Choking"; Dr. Otto Noack, "Azoturia"; Dr. N. E. Reinhart, "Tuberculosis in Dairy Cattle and How Shall We Get Rid of It?"; Dr. Leonard Pearson, "An Argument for Municipal Slaughter-Houses"; Dr. R. G. Rice, "The Use of Chloral Hydrate in Indigestion and Colic"; Dr. J. B. Irons, "Fracture of

Tibia"; Dr. J. W. Adams, "Differential Diagnosis of Lamenesses Located Within the Hoof."

There will be an evening session on Tuesday, at which Dr. Alfred Stengel will talk upon "Importance to the Public of a Wholesome Meat Supply"; Dr. M. P. Ravenal, "Some Bacterial Diseases of Animals Transmissible to Man," with lantern slides; Dr. Robert Formad, "Pathological Demonstrations"; Dr. John W. Adams, "Suggestions for Improving the Meat Inspection Service of Philadelphia."

During the day sessions the following operations will be shown:

Methods of casting and securing animals for operations, operation for relief of spavin, operation for prevention of cribbing, operation for relief of springhalt, oöphorectomy of cow, oöphorectomy of bitch.

Luncheon will be served on the grounds each day at noon and supper will be given Tuesday night. All veterinarians are invited to attend and thus lend their aid to this meeting in particular and veterinary matters generally.

We hope to have a special railroad rate but as yet cannot say.

W. L. RHOADS, D.V.S., *Cor. Sec.*

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular annual meeting of the association was held at Hotel North Augusta, Wednesday, February 11th, at 7.30 P. M. President West in the chair.

Present: Drs. West, Freeman, Joly, Huntington, Purcell, Russel, Stevens and Salley.

The minutes of the previous meeting were read and accepted.

Our Veterinary Legislation Bill was taken up by sections, corrected and made ready for presentation to the Legislature.

Election of officers resulted as follows: President, Dr. W. L. West, Belfast; Vice-President, Dr. F. L. Stevens, Farmington; Secretary, Dr. I. L. Salley, Skowhegan; Treasurer, Dr. A. Joly, Waterville; Executive Committee, Drs. Huntington, Purcell and Freeman.

Dr. Freeman read a paper entitled "A Veterinarian's Duty to His Associates," which was a very good exhortation to each member to do his duty, not only to the animals under his care, but to his associates, both in and out of the meeting.

Moved by Dr. Joly, seconded by Dr. Purcell, to meet at

Augusta on the date of the hearing of our Veterinary Bill by the Judiciary Committee, which will be February 14, at 2.30 P. M.

Voted to adjourn to meet at Augusta in April.

I. L. SALLEY, D. V. S., *Secretary*.

SOCIETY NOTES.

At the nineteenth regular meeting of the Missouri Valley Veterinary Medical Association, held February 27, at Kansas City, Mo., the following operations in the surgical clinic were to be performed: A new operation for the cure of the cribbing habit, peroneal tenotomy for the cure of stringhalt, and cunean tenotomy for the cure of spavin. The literary programme was as follows: "Tuberculosis of Swine," by Dr. James S. Kelly, St. Joseph, discussion led by Dr. S. Stewart, Kansas City; "Leucæmia," by Dr. B. F. Kaupp, Kansas City, discussion led by Dr. J. C. Milnes, Kansas City; "Injuries to the Flexor Metatarsi," by Dr. R. C. Moore, Kansas City; "Echinococcus Veterinorum," by Dr. S. Stewart.

We have received an exhaustive report of the last meeting of the Ohio State Veterinary Medical Association, held at Columbus, January 11 and 12, and as it is very interesting we desire to print it in full in one number, which will be done in the April REVIEW.

Read the list of operations performed at the late meeting of the Minnesota State Veterinary Medical Association, and ask yourself if the example is not a good one to follow in your own Association.

NEWS AND ITEMS.

DR. E. L. VOLGENAU has left Buffalo and taken charge of the local branch of the Bureau of Animal Industry at New Haven, Conn.

DR. VOLGENAU TO MARRY.—Mr. and Mrs. Herman Bernhardt, of Elmwood Avenue, Buffalo, N. Y., announce the engagement of their daughter Jessie and Dr. E. L. Volgenau.

AT the annual meeting of the New York State Agricultural Society, Veterinarian G. Howard Davison was elected one of the Vice-Presidents, and John T. Claris, V. S., of Buffalo, official veterinarian.

AUREL BATONYI, the noted driver, purchased in Chicago the second week in February for a wealthy English gentleman,

a high-stepping coach-horse for \$5000, the highest price we have ever seen recorded for this class of horse. He had been searching for such an animal for two years.

LONG PRICES FOR SHIRE HORSES.—Fifty Shire horses belonging to the Earl of Ellesmere were sold at Stetchworth, Newmarket, Eng., Jan. 11, for \$20,255, an average of about \$405. The highest price was 500 guineas given by Sir J. Blundell Maple for the four-year-old mare Juno of Worsley 9th.

THE HORSELESS.—During the recent blizzard the automobile proved its worthlessness in heavy going. Six of them were stuck in snow-banks on the New York Boulevard at one time; the wheels responding to the motive power by simply whirling around without progression. Horses were obtained from nearby livery stables and the things dragged back to their headquarters.

AN EVERY-DAY DISINFECTANT.—Veterinarians have no doubt overlooked the fact that the common bar soap (potash soap) is a very good disinfectant, it destroying germs of various kinds. It performs its duty probably better than some of the so-called antiseptic soaps. In these days where the germs producing various diseases are becoming better understood, antiseptics (both internally and externally) play no little part in the treatment of many affections.

F. X. T.

DR. MAURICE O'CONNELL, of Holyoke, Mass., has just returned from an extended trip to the West, in search of health, having visited California, New Mexico, and other States. We are pleased to announce that his mission was eminently successful and he returns to his duties in the Bay State thoroughly recovered. In commemoration of his safe return the city of Holyoke has appointed him city veterinarian at a salary of a thousand a year, while Governor Wolcott renewed his confidence in his ability by re-appointing him a Cattle Commissioner for the term of three years.

FRENCH STALLIONS.—Under the law of 1892 the French government is empowered to maintain 2800 stallions for public service. For some months past a strenuous effort has been made by advocates of the thoroughbred to induce the government officials to increase the number of thoroughbreds and decrease the number of trotting and carrossier stallions kept for public service. The agitation in favor of the running horse failed of results, however, as the officials declined to alter the proportions of stallions of the various classes. They stand about as follows: Thoroughbreds and Arabs, 550; demi-sangs, 1850; draft horses (chiefly Percherons), 400.

THE DIPPING OF CATTLE.—Col. Albert Dean, in pursuance to orders from D. E. Salmon, Chief of the Bureau of Animal Industry at Washington, has ordered dipping cattle to be discontinued at all of the vats and has placed inspectors at the different dipping stations to carry out the orders. This ruling was made by the Bureau on account of the many complaints of losses at the several dipping vats. The results at the Mammoth Springs Station have been fairly successful, but at Fort Worth and East St. Louis the losses from death have been severe in a great many instances. Experiments are being conducted by Dr. Norgaard at Claybourg, Tex., near Corpus Christi, with different dips. The present formula is regarded as too severe, particularly in the winter months. The Bureau has not given up the idea of dipping to prevent Texas fever, but has simply concluded to carry the experiments further and demonstrate its feasibility beyond a doubt. However, it is practically admitted that no further dipping will be done with the present Government formula during the cold weather. The officials of the Bureau believe the dynamo oil and sulphur dip is all right in warm weather, but think it is too hard on the cattle in colder climates. In the experiments now being conducted linseed and lard-oil are being tried with prospects of success.—(*Kansas City Drovers' Telegram.*)

SECRETARIES OF V. M. ASSOCIATIONS

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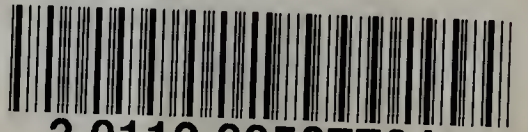
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